The Builder.

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ILLUSTRATIONS.

Interior View (with Plan) of the New Church of the Holy Trinity, Upper Chelsea.—Mr. J. D. Sedding, Architect ..... *Four-Page Photo-Litho.*
Exterior View of Holy Trinity Church, Upper Chelsea.—Mr. Sedding, Architect ..... *Double-Page Photo-Litho.*
The Oak Room, New River Company's Offices.—From a Drawing by Mr. John Crowther ..... *Double-Page Typo-Gravure.*

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The Arts and Crafts Exhibition.

THIS exhibition, which was opened to the public last Monday in the New Gallery in Regent-street, is of great interest and very attractive, including some things, no doubt, which are of a somewhat *outré* and eccentric character; but, for the most part, consisting of decorative work of a high class, and marked by a great deal of originality, as well as sincere artistic feeling. It is true that one of the principal objects which was proposed when the exhibition was first planned, the bringing the actual maker of the work in direct contact with the purchaser, seems to have been only rather partially carried out. One of the first things we come to is "Design for Paper-hanging, by Messrs. Rigley and Rigley" (6), which is the old style of thing over again. A firm cannot design; it is an individual who designs; but it is to be presumed that this fact of the individuality of artistic work cannot be entirely asserted all at once, the popular belief that art is purchasable at a manufactory being too deeply rooted. We have here, at all events, an attempt in the right direction, and in a great many instances we are brought in contact with the original designer and his work, without any middleman or artistic broker intervening, which is something gained.

The exhibition bears more or less the stamp of a certain clique of artists; it represents the views and tastes of a sect; but the amount of beauty and variety in the work exhibited says a great deal for the talent and artistic feeling in the ranks of the sect, and it is impossible to go over it without reflecting what real progress has been made in decorative design during the last quarter of a century. Twenty-five years ago, such an exhibition as this—so full of fine colour and outline, and so devoid of anything which can be regarded as vulgar, or in bad taste, would have been impossible. Such work as fills the walls of this exhibition was hardly to be had at all, for love or money; and the most remarkable point about the present exhibition is the degree in which it bears the stamp of love rather than money. It is full of things which seem to have been done because the designer and maker enjoyed doing them: not because they were calculated to sell well. The enormous difference between this kind of work and mere trade art may be appreciated by comparing this with the kind of exhibits which used to be seen, for instance, at the Building Exhibitions at the Agricultural Hall, and which are still too prominent in the large multifarious exhibitions of all kinds of work which have become so popular of late, and in which work done with a purely artistic motive is one of the greatest rarities, and seems almost lost and out of place when met with.

In the exhibition at the New Gallery the numbers commence, as usual, in the West Gallery facing the entrance. This contains various works in embroidery and textiles of different types; tiles, metal-work, wall-papers, and some fine specimens of book-binding. In the textile designs the influence of Mr. William Morris is apparent in not a few of the examples. The characteristic which he has emphasised, and which so many others have borrowed from him, in decorative design of the foliage type, is the employment of grand sweeping curves of leafage so arranged as to fill nearly the whole space, with little "ground" left between them. It is this method of treatment which gives such a massive and rich character to many of the textile designs issued by Messrs. Morris & Co., and the spirit of which has been caught by other designers. It is nowhere better shown than in the "Silk *portière*, designed and executed by Henry and Catherine Holiday," No. 13 in the catalogue. This design, springing from a great central stalk, rising from a conventional flower-pot, is, to our thinking, too symmetrical for a *portière*, which is very seldom hung so that the symmetry of design can be seen. Where your pattern is generally likely to be seen flat and undisturbed, then indulge in symmetry on each side of a centre, if your soul longs after such symmetry; in a curtain which is constantly to be hung in folds, festooned, draped, pushed aside, symmetrical design is lost and out of place, as its symmetry is seldom seen in an undisturbed state. Otherwise this is a grand bit of work, with its great purplish serrated leaves spreading their broad surfaces over the ground. In comparing the designs in which foliage forms are introduced in this collection, one is strongly impressed with the pervading power and influence of the Greek acanthus. Where we come upon foliage design, whatever may be its varieties of colour and general effect and disposition, we never seem to be very far from the Greek acanthus. With variations of detail its typical form and character are continually recurring; no one seems able to escape from it; a striking proof of the artistic power and influence, in little as in great things, of "the supreme Caucasian mind." Mrs. Aldam Heaton exhibits two screen-panels (11 and 16), embroidered on cloth in "tram" silk, "the ground being embroidered as well as the design." It might perhaps be questioned whether the additional effect of this embroidery of the ground was commensurate with the labour of producing it; but the procedure is in the true artistic spirit, which will spare no trouble for completeness of effect. The embroidered ground gives a unity of tone and a broken and softened colour, in place of the comparatively raw effect of a self-coloured ground. Mr. de Morgan's large "decorative panel in tiles" (17) is a striking piece of work; the main feature in the design is the conventional treatment of peacocks in side elevation, fronting inward and outward alternately, the interspaces filled up with vases and floral design. Among the pretty and original things in this part of the room is a "Frieze for a mantel valance" (20), worked by Mrs. Crane from the design of Mr. Walter Crane, in cotton on black merino; conventional animals arranged within their delicate scrolls of foliage. This is one of the numerous examples to be seen in this exhibition in which common occasions of decoration are treated in a special and original manner. A "mirror-frame" (44), by Mrs. Heaton, with floral design, embroidered in "tram" silk, is a very rich bit of effect; the design in this, as in the two others beforementioned, is by Mr. Aldam Heaton. A "Leaf of a folding screen" (49) painted in oils on silvered and lacquered sheepskin, is a very rich piece of work, "engraved by T. Aldam Heaton, painted by Ellen Steadman." Notice the rich effect of the gold surfaces of the acanthus leaves, diapered over with a pattern of very small scrolls in relief; how different from the hard effect of a mere flat gold surface. This feeling for surface effect is one of the most marked characteristics of recent decorative work; the small diaper gives richness and softness to the surface on a distant view, and something more for the eye on a nearer view.

The end of the room is occupied by a display of works bearing the name of Morris & Co., the textiles mostly designed by Mr Morris; two pieces of furniture, a mahogany

cabinet and a sideboard, are marked as designed by Mr. G. Jack. These are admirable specimens of furniture, notable for their simplicity of line and style, combined with admirable execution; the sideboard is especially worthy of notice for unobtrusive originality of treatment and detail. Among the few furniture exhibits, a studiously plain piano-case, "The Century Guild Cottage Piano" (128), decorated only with mouldings, is a good, unpretending piece of work in excellent taste; a novel feature in this is the vertical post at each side, at half the projection of the keyboard, connecting this, in design and construction, with the top-rail and foot-rail; the designer's name is not given. Near this are some furniture and architectural details designed by Mr. R. T. Blomfield. His gas-lantern standard in iron and brass is good in idea, but there is a weak point at the springing of the brass scrolls which support the lantern, and rise from the iron standard; the junction of the two is not very well managed. The "Grate" (98), with the panel and ornamental detail cast in brass and worked up by hand, is very good; the top-plate is decorated by a half-seen face in very low relief, with the hair indicated in incised lines, springing out into flame-like forms. One of the few things we do not like in this room is the large "Chimney-piece and Hearth" by Messrs. W. de Morgan, built up in wood coloured to imitate two marbles, white and yellow; we presume this is intended as a model only of what is to be executed in marble; but the details and profiles, even taking it so, are not refined. The "Arcaded Screen" (34), by Mr. Benson, and the large pair of wrought-iron gates in the entrance-hall (289), designed by Messrs. Robinson & Robson, are both open to the charge of too realistic work in the floral detail; in the gates there are absolutely realistic sprigs introduced, with the base of the stalk modelled as if torn from the bough. This is a mistake in metal work—a piece of false taste. Better examples of metal foliage work are seen in the bit of copper and wrought-iron railing (309) on the opposite wall, designed by Mr. G. C. Horsley, which is a grand little bit of metal detail; and the wrought-iron bracket (308) designed by Mr. Sedding, who is also the author of some fine designs for wall-papers among the set of embossed papers exhibited by Messrs. Jeffrey & Co., in the West Gallery, at the opposite end from Messrs. Morris & Co.'s exhibits. Among other architectural accessories in the West Gallery is a collection of tile designs executed by Messrs. Maw & Co. from the designs of various artists, whose names are duly given; a collection of wall-tiles by Mr. F. Garrard; and of silk and other fabrics by Mr. Thomas Wardle.

We must not quit the West Gallery without calling attention to two cases of book-binding designs by various hands. Some of these are singularly charming and artistic in feeling. Among those executed by Messrs. Burn & Co. is one designed by Mr. Philip Webb, a gold-tooled cloth design, with a small flowing design breaking out here and there into large flower forms, which is a gem in its way, and even surpasses the well-known design by Rossetti for his own volume of poems, which is placed near it. One or two others, designed by Mr. Lewis F. Day, especially No. 113, are very good, also Mr. Roger de Coverley's Milton (107), after an early Italian binding. One cannot help noticing that by the side of these and others we have mentioned, the Dante after Grolier and the New Testament after Roger Payne (105 and 106), also executed by Mr. de Coverley and Mr. Frederick Harvey, have a decidedly commonplace look; indeed, the artistic quality of the Grolier style of binding has been, to our thinking, much over-rated; neat and symmetrical as it looks, it is formal in line, and rather thin and poor in general effect. There is some interest in the same binder's examples of the old plain calf binding, in copies of Blake, Boccaccio, and Goethe (104); almost perfectly plain bindings, with just a line round the margin, and in one case the old-fashioned little leaf or sprig in the corners; there is little to call design in these, but they are effective from their appearance of sound and lasting workmanship,—a better characteristic than that of more decorative design, combined with flimsy workmanship, which is found in so much fashionable binding of the day. The other case of books contains a series of bindings by Mr. Cobden-Sanderson, "Specimens of bookbinding in morocco, wholly tooled and worked by hand," which are admirable both in taste and execution.

But it is time to turn to the North Gallery. This is largely occupied by decorative work of a higher class—figure design applied to decoration in the form of stained glass, and mosaic and other forms of wall-decoration. The top of the room is entirely occupied by full-sized cartoons for windows and mosaic, by Mr. Burne Jones. This is work which forms the connecting link between decoration, in the merely ornamental sense, and painting as the expression of human feeling; it is painting executed with a special reference to architectural surroundings. It is the fashion now with a certain school of critics to speak of this as the highest type of painting,—a view from which we have always dissented. The highest type of painting of subjects from human life and from nature, like the highest type of poetry in literature, stands alone and apart in its interest; it is too vivid and full of life to be harmonised with any dead scheme of decoration, however rich in effect; it must be studied for itself and by itself. To make painting a part of a decorative or architectural scheme, something must be taken from the life of the painting; a procedure perfectly logical for this special end, but not exhibiting the highest expressive power of painting. A good deal of the work in this gallery illustrates this. Some of these designs of Mr. Burne Jones's, however powerful and original, in a sense seem to us to have missed both objects,—both living expression and decorative effect,—in the effort to combine both. In the cartoon for "The Nativity," for a window in a church in Birmingham, for instance, the rocky arch of the cave in which the Nativity takes place is far too realistic for decorative effect in a window; it is a mass of disagreeable dull colour, with no decorative form or surface; while, on the other hand, the angel above appearing to the shepherds, and apparently standing on the backs of the sheep, is too absurdly unreal,—a stiff, vertical figure without any more life in it than in the little men and women in the old-fashioned Noah's Ark toys. The cave portion is too realistic; the figure not realistic enough. The decorative treatment of the branches of the leafless trees, on the other hand, is masterly, and just hits the mean where sufficient life is combined with decorative effect. The cartoons for mosaic, executed at Murano for the apse of the American Church at Rome, are very interesting: the main design of the apse consists of a circular choral dance of angels, whose wings form a rich medley of form and colour in the inner portion, their feet being towards the outer edge of the space; there is a real touch of genius in this idea. The cartoon for the figure of the angel Gabriel (182) is remarkable,—indeed, one might say worse than remarkable,—for the absurdly small size of the head. It is really astonishing how any artist could bring himself to paint such a glaring contradiction of the proper proportions of the figure; this figure must be about twelve heads high. This and the vertical angel in the other design are among those perversities with which one is constantly puzzled and annoyed in the work of this remarkable and original decorative painter, who has invented a distinct poetic treatment of his own in painting, the beauty and imaginative character of which no one can deny, in spite of these occasional curious eccentricities of drawing.

The cartoons for sgraffito decoration for a church near Abergavenny, by Mr. Heywood Sumner (157 to 162), are very interesting; this is one of the best applications of sgraffito to internal decoration that we have seen, but this again illustrates the collision which takes place sometimes between nature and conventionalism, when it is attempted to combine both. The design for "O ye winds," where the winds are represented by winged figures, is very fine and effective; but, "O ye mountains and hills," with a sgraffito indication of conventional landscape, we fear looks only puerile and absurd; it suggests a child's drawing of a landscape. Details in nature can be conventionalised; but the whole face of landscape will not bear that. The attempt to do it, as far as we ever remember to have seen it, only results in an absurd effect of shortcoming, an attempt with inadequate means. That is one reason why landscape never answers in a stained-glass window; independently of the question of plane in a transparency, it is impossible to represent landscape in that material in any way which is not a travesty; and the same is the case with sgraffito.

The same gallery contains some fine cartoons of figures for stained glass, by Mr Holiday, who seems to have arrived at perfection in the system of treating the figures for work of this kind, and preserving the true mean between naturalism and conventionalism. Among examples of decorative design with a special signification, the water-colour cartoons for domestic windows, "Fire" and "Water" (212, 213), by Mr. Christopher W. Whall, are admirable both in design and in the pleasing fancy of the ideas; water is represented by a nude figure with broad fronds of sea-weed growing round her, and with hands uplifted holding up, at a line indicating water surface, a ship or ark; a very pretty translation into artistic expression of the fact of the supporting power of water. Mr. Walter Crane's colour cartoons for mosaic (219-228) should be looked at, especially the design called "Air," and the "Eagle and Snake," and "Fire." There is a frame of small coloured designs for stained-glass by Mr. Lewis F. Day (198-204), of a merely decorative and less fanciful order, which should be looked at as admirable bits of line and colour design precisely adapted to the capabilities of the material.

Among smaller examples of decorative detail in the North Gallery, there are some models by Mr. Osmund Weekes (240) for door-furniture, including two door-handles, for execution in brass, which are curious and fanciful; they are apparently designed and the figure parts finished by Mr. Walter Crane; the door-handles are sea-horses (the little fish so called, familiar in aquarium tanks), with their tails curled round the spindle, a characteristic adaptation of what is the real attitude of these creatures, which cling with their tails in this way round stems or weeds. A blade for a fish-slice, executed by Mr. Massé after an old design of the date of 1725, is a charming bit of work, with a heron and fishes in silhouette entwined in conventional scrolls; compare this with the ordinary fish-slice patterns of the shops! Mr. Heywood Sumner has some plaster frieze decorations (246), of which the upper one, of a rather Byzantine acanthus character executed by Mr. P. Webb), is an unusually good example of decorative foliage, beautifully designed and modelled. The Century Guild have also some plaster casts of decoration, of which one, a frieze in plaster for the Cutlers' Hall, suggests how a new and more refined effect may be given to an ordinary type of foliage decoration by working it in very low relief. The gallery contains also a piano decorated by Miss Kate Faulkner in *gesso duro* foliage on the wood ground, gilt, and with some of the flowers silvered, which is rich and striking in effect, but there is a want of repose about it. "It may be art, but it would look horrid in a drawing-room," was the criticism we heard on it from a lady. That depends, of course, on what kind of drawing-room it was; the criticism is an essentially and characteristically Philistine one; a great many English ladies would think anything out of the ordinary run of fashionable furniture design would "look horrid in a drawing-room"; but reticence and reserve also counts for something in decoration, and we did think the example in question rather overdone; at all events, it would certainly

require the whole apartment to be designed up to it.

The entrance-hall contains a rather multifarious collection of things, to some of which we have already referred. One of the most prominent exhibits is a balcony front with long centre panel and two square side panels, designed and modelled by Mr. Kellock Brown, of the "Century Guild of Artists." The middle panel contains a bronze bas-relief figure, in which the artist has paid Mr. Harry Bates the compliment of imitation: the side panels are filled up with what we should call, not scrolls, but big "wallops" of bronze; lumps with no shape or meaning in them. We seem to have met with this sort of formless detail in other work of "the Guild." That is not "design." A scroll is a thing to be carefully and definitely designed and drawn; a mere formless curl is only a kind of indication that the artist did not know what else to do with the space, or was too indolent to take the trouble to design anything properly.

The catalogue of the Exhibition is prefaced by some essays on various branches of decorative art, mostly very well written, and containing a good deal which may be useful in setting people thinking,—those who are not accustomed to consider such subjects worth serious thought. Mr. William Morris contributes an essay on textiles, in which he makes some apposite remarks in regard to tapestry, "the noblest of the weaving arts," which may be regarded as a mosaic of dyed threads; and as to its character and capabilities he adds the following criticism:—

"As in all wall-decoration, the first thing to be considered in the designing of tapestry is the force, purity, and elegance of the *silhouette* of the objects represented, and nothing vague or indeterminate is admissible. But special excellences can be expected from it. Depth of tone, richness of colour, and exquisite gradation of tints are easily to be obtained in tapestry; and it also demands that crispness and abundance of beautiful detail which was the especial characteristic of fully-developed mediæval art. The style of even the best period of the Renaissance is wholly unfit for tapestry: accordingly we find that tapestry retained its Gothic character longer than any other of the pictorial arts. A comparison of the wall-hangings in the Great Hall at Hampton Court with those in the Solar or drawing-room will make this clear to any one not lacking in artistic perception; and the comparison is all the fairer, as both the Gothic tapestries of the Solar and the post-Gothic hangings of the Hall are pre-eminently good of their kinds."

This is perfectly true, and the Hampton Court tapestries should be looked at in the light of these remarks. Most visitors, we strongly suspect, prefer the Hall tapestries, and it is true the drawing-room ones are so much faded, and seen in such a bad light, that it is difficult to do them justice; but we have always thought them the very ideal of tapestry style; the Hall tapestries are far too pictorial. Another dictum from Mr. Morris's essay we may draw attention to (always remembering that he is referring specially to textiles); "never introduce any shading for the purpose of making an object look round; whatever shadowing you use should be used for explanation only, to show what you mean by such and such a piece of drawing; and even that you had better be sparing of." And yet another quotation we may add:—"It is the pleasure in understanding the capabilities of a special material, and using them for suggesting (not imitating) natural beauty and incident, that gives the *raison d'être* of decorative art." All which is as true as gospel.

Mr. Walter Crane contributes papers on "Decorative Painting" and on "Wall Papers," Mr. Benson one on "Metal Work," Mr. Somers Clarke on "Stone and Wood-carving," and others on "Stained Glass" and "Table Glass"; Mr. Cobden-Sanderson one on book-binding, and Mr. Emery Walker one on "Printing," the artistic element in which is too often overlooked nowadays. He prints a couple of sentences in the type "now universally used for newspapers and government publications," as a contrast with an older and more artistically designed type used in the rest of the printing of the catalogue. We commend this example (page 93) to those concerned in designing type. It is worth while to examine the two forms with a magnifying glass and notice the difference between the mechanical finish of the favourite modern type and the fine drawing of the extremities of the letters in the old model. Mr. Walker, however, finishes up with a sentiment that is very objectionable if carried out to its full extent of possible meaning:—"Next in importance to the type are the ornaments, initial letters, and other decorations which can be printed along with it. These, it is obvious, should always be designed and engraved so as to harmonise with the printed page regarded as a whole. Hence illustrations drawn only with reference to purely pictorial effects are entirely out of place in a book, that is, if we desire seriously to make it beautiful." We fear the literal interpretation of that would lead to taking the real life out of the illustrations to a novel or poem, for example, and reducing the figures to merely decorative adjuncts with no human expression or interest; the same mistake as regarding pictures only in reference to their decorative effect in the room, and not for the sake of their own expression as painted poems.

In an exhibition of decoration, however, one naturally expects to find the decorative view of art pushed as far as possible; such teaching is not out of place; it emphasises a view of the function of art which is little appreciated or understood by the general public; we only put in a caution against carrying it too far. In conclusion, we hope that the "Arts and Crafts Exhibition," now that it has made such a good start, will be an annual event. It is a real pleasure to get an exhibition of decorative work which is done for the love of art, and where one does not seem to meet with the taint of the shop at every turn.

THE MONUMENT.

THE recent accident to the Monument has revived an interest in this old London show, once dear to "country cousins," and a brief memorandum of its history may not be out of place. The Monument was erected in 1671-7, pursuant to Act 19. Car. II. c. 3. The cost, about 14,000*l.*, was defrayed from out of the Orphans' Fund. It rests upon a stone vault, and is built of Portland stone. The pedestal, 27 ft. high (excluding the base), is 21½ ft. square on plan, and the Doric pillar, which was fluted after the masonry had been carried up, and has an extreme diameter of 15ft., rises 133 ft. to the balcony. The cippus, cupola, urn, and flames reach to 38 ft. above. Wren's original design was for a less simple memorial: a shaft with volumes of flames bursting forth at intervals, and surmounted with a Phœnix—this and the flames to be of brass, gilt. This he ultimately rejected, fearing that such a building would prove too costly, and offer too much surface to the wind. His design, preserved at Oxford, has been engraved by Mr. W. Hulsbergh. On the pedestal's western side is Cibber's composition, partly in alto-relievo, of Charles II. and the Duke of York, in Roman guise, with Architecture,—a gaunt woman holding instruments and a plan,—and sundry other allegorical figures. These, excepting Envy in her cavern, spouting fire, encourage London, who languishes in the arms of Time. In the background is an interesting group of masons and scaffolding of the day. The two Latin inscriptions were composed by Dr. Gale, afterwards Dean of York. The phrases around the pedestal, in libel of the Papists, were inserted by the Corporation at the time of the Titus Oates plot, and having been erased *temp.* James II., were re-cut in his successor's reign. On the 26th of January, 1831, they were finally obliterated. The Monument was for some while used by the Royal Society, who found, however, that vibrations caused by the passing traffic to and from old London Bridge affected the accuracy of their astronomical adjustments and observations. Whilst the road-traffic is now lessened, the railway station by Eastcheap, and that of the new City of London and Southwark Subway, are in close proximity. The best views of the Monument are to be found in the measured drawings, with the Trajan column to scale, and a few particulars from "Parentalia," of J. and T. Taylor (1791), W. Lowry sculpsit; and of N. Hawksmoor (1723), W. Hulsbergh sculpsit. W. Marlow's fine view of Fish-street-hill, looking south, was painted in 1792, and engraved in line by Thomas Morris, a pupil of Woollett; it was published by John Curtis, at Twickenham, on November 4, 1795. The Sir Balaam, commemorated in Pope's third epistle to Lord Bathurst, as dwelling in Monument-yard, is identified with Thomas Pitt — died April 28, 1726 — who, when Governor of Fort St. George at Madras, purchased for 20,400*l.* the celebrated diamond, and was grandfather to the statesman Earl of Chatham. A considerable portion of Monument-yard was pulled down in 1880–1, and with it, we believe, the house of Jacob, the benevolent chemist. Here, in February, 1756, after his brief sojourn "among the beggars in Axe-lane," Goldsmith found employment as an apothecary's assistant, until his quondam fellow-student, Doctor Sleigh, and Jacob, set him up as a physician in Bankside. Hogarth, who once lived, it is said, on old London Bridge, gives a view of Monument-yard in his Lottery plate.

The fall of stone from the Monument, presumably owing to the decay of part of the structure, again opens the question as to the desirability of using limestones in the construction of public buildings in the metropolis. At the time the Monument was erected, its celebrated architect was quite justified in using Portland stone, as it was not only the best available material, but was, in the London atmosphere of those days, eminently suitable in point of durability. Times have, however, now altered; the extension of this vast city, with its many manufactories, has contaminated the atmosphere to such a degree that limestone is more or less rapidly destroyed by its action, and even the splendid material used by Sir Christopher Wren has suffered with the rest. Now Wren is noted for the care he bestowed in the selection of his materials. It is a matter of history that the Portland stone used in St. Paul's Cathedral is not the same as the Portland stone of to-day; it has been shown that the quarries whence he obtained the limestone were situated in a different part of the Isle of Portland from the present workings. We have it on good authority, also, that the principal reason of the abandonment of the old quarries was because the stone was harder and more difficult to work than in the other and more recent openings. Competition, as usual, has wrought this result. When, therefore, we speak of the durability of Portland stone, it is well to define the particular quality referred to. There are at least five different qualities in the island worked at the present day. The best is undoubtedly the most serviceable and durable limestone in the market, and will last as long as, if not longer than, any other kind of freestone, in the London atmosphere. But no freestones are very durable in it. Sooner or later the hydrochloric and sulphuric acids, beaten into the stone by the action of rain and wind, will honeycomb the surface and lead to general disintegration. Nothing can now equal the more non-absorbent, compact sandstones with siliceous matrices devoid of carbonate of lime; or better still, the fine and medium-grained granites, for the construction of public edifices within this smoke-begrimed city. At the same time, we can hardly agree with the writer of a letter which recently appeared in a daily paper, suggesting that "it would be very undesirable to repair the monument on Fish-street-hill with the perishable material of which it is built." We do not apprehend that the decay of the column is very far advanced, and if a little extra care be exercised in its selection, we should think that the best variety of Portland stone might very well be used to restore it with, rather than introduce a foreign substance. It would be a different matter were another

Monument about to be erected. We should then recommend the use of the more durable materials.

NOTES.

IT appears that no assistance will be forthcoming either from the English or French Government towards the representation of English art at the Paris Exhibition of next year, and Sir F. Leighton has, through a letter to the Lord Mayor printed in the *Times* of Tuesday, called on those who feel a patriotic interest in the adequate representation of English art at the exhibition to assist this end by subscribing money for the necessary expenses, and by the loan of valuable works of art. In regard to the former end, the President of the Royal Academy has set an example with a cheque of 100*l.* towards the expenses of the undertaking, which will probably amount to about 3,000*l.* It is to be hoped that an effort will be made to have a fine collection of painting, sculpture, and architectural and decorative design, to represent the art of this country, on an occasion when there will probably be such an unusually large and varied congregation of spectators from all parts of the world.

IN reference to our foot-note to Mr. Ralph Nevill's letter last week, we find it was not in a letter of Mr. W. H. White's in the *Times*, as we thought, but in a paragraph in the Institute *Journal of Transactions*, that we had seen the names of two eminent church architects mentioned as specially responsible for the "General Advice" as to church restoration. While referring to the subject, we may observe that Mr. Nevill, in the aforesaid letter, did not apparently quite understand our view of the matter. We do not dispute that the architects named (Mr. Pearson and Mr. Blomfield) were specially qualified by special knowledge and experience to instruct in regard to the conservation and restoration of churches, provided that the principle be once accepted that every particle of old work is to be considered as worth preserving because it is old, even by such methods as scarfing on new feet to old roof timbers, or cutting off the outer half of a mullion and pinning a new one on. If that view is adopted, no one knows better than they how to direct operations. But the question whether that is a reasonable view to take of the whole subject is the very one which is in dispute; and what we implied was that "General Advice" had been issued as the advice of the Institute of Architects, which involved a principle of treatment that we are by no means sure that the Institute as a body would pledge itself to: that it is the principle of one sect, not of the whole body.

MANY of our readers will have heard with great regret of the death, on the 28th September, of Mr. T. Gambier Parry, at his house at Highnam Court. Mr. Parry was, as every one knows, one of the most noted and gifted of the band of amateur ecclesiastical artists and art-lovers who were part of the production of the great church revival movement of this century. Mr. Gambier Parry, however, was more fully and truly an artist than most of his compeers in the same band. His decorative painting at Ely Cathedral was a very important work, as well as his decoration of the church which was built at his own cost at Highnam; and his development of the spirit fresco process of painting was an important practical contribution to the technique of the art. It must be admitted, however, that the work at Ely and Highnam must be judged by a different standard from that which we apply to the leading artistic work of the day; it is essentially amateur painting, though amateur painting of an unusually high class. Mr. Parry's rather recently published volume of artistic essays* contained much beautiful writing on art, and is the index of a highly refined, sensitive, and cultivated mind. Mr. Parry's personal manner and appearance harmonised remarkably with his artistic repute: he impressed one, as we heard it remarked, with the idea that he was one of the Italian Renaissance artists come to life again in the nineteenth century. He leaves a wide circle of friends by whom he will be regretted, both on public and private grounds.

* "The Ministry of Fine Art."

DR. HUMANN, the fortunate discoverer of the great Pergamene altar, has again lighted upon archæological remains which promise to be of great historical importance. Under the auspices of the Berlin Oriental Society, he, together with Drs. Insstam and Winter, have been on an exploring expedition in North Syria, with a view to investigating the numerous artificial tumuli there, which it was supposed contained "Hittite" remains. As long ago as 1883, when Dr. Humann was on his way to Nimrud, he had possessed himself of a relief in "Hittite" style, representing a lion hunt; and Handi Bey, Director of the Constantinople Museum of Antiquities, had noticed in one of the tumuli some reliefs still standing upright. The excavations set in hand have already laid bare a building which seems to be a sort of propylæa, adorned with forty reliefs found actually *in situ*. In this propylæa stood the colossal stele of King Assarhadan. It is covered with inscriptions in cuneiform, and records the war of Assarhadan against Egypt (B.C. 667-600). The reliefs are of colossal size, and have with the greatest difficulty been transported to the harbour of Alexandrette. Thence it is intended that specimen slabs should go to Berlin, while the main bulk of the sculptures must be taken to Constantinople. This "find," together with the great Sidonian sarcophagi, make the Constantinople Museum a place with constantly-increasing claims on the attention of archæologists. It is somewhat curious that Dr. Humann's first archæological discovery should open up a new chapter in the history of late Alexandrian art, while his present discovery sheds new light on the early epoch of Hittite influence.

IN England we have placed our Law Courts, in which the internal space has been economised so as very largely to detract from their usefulness, well within the reach of all who have need to go to them. In Belgium, on the other hand, the Government not very long ago opened new Law Courts, of which the internal arrangements are large and ample, but to which the access from the lower part of the town is bad. It is quite clear that this vast pile, the delight of modern Brussels, should have a boulevard cut direct to the Bourse, or Hôtel de Ville. At present it is difficult to say whether it is most disagreeable to go up to the Law Courts in a carriage or on foot, through the narrow, steep, and badly-paved streets which lie between the two points we have indicated and the Palais de Justice.

IN spite of the number of new bathing resorts which have within the last few years come into notice on the Continent, Wiesbaden not only holds its own, but grows. This is not surprising when we bear in mind that travelling and tours have immensely increased among the Germans during the last ten years. The drawback to Wiesbaden, from a health point of view, certainly is that the best hotels are clustered in a group round the hot springs, in the very hollow of the valley. Wiesbaden in the summer-time is thus, to those who frequent the hotel where the English most resort, decidedly enervating. There seems to be a want, indeed, of a large and airy hotel higher up the sides of the valley, in the higher part of the Taunusstrasse, or among the villas along the chestnut-lined Kapellenstrasse; but if the hotels stand low, the villas are fast creeping up the sides of the valley and almost up to the wooded Neroberg. The situation which many of them occupy is as fine as any in Germany, with many miles of the Rhine-plain spread below and wooded heights above. They are noticeable, too, for the variety of the materials of which they are constructed. Some of them are white, of a light stone; others are covered with cement or plaster; others, again, are built of a rich red brick, which is warm and pleasant to the eye; while of not a few the material is brick of a delicate terra-cotta tinge. There is nothing pretentious about the architecture, though it may also be said that none of the buildings aim at being strikingly picturesque. But they have a substantial, pleasant aspect, and must add largely to the attractiveness of Wiesbaden for those who desire to make it a residence.

IN a leading article upon the project to erect a suitable memorial in Fulham churchyard to Theodore Hook (born Sept. 22, 1788), the *Times* upbraids the present generation as one "which is satisfied to forget the spot in which Sterne was buried." Sterne, who died in Old Bond-street, where, we take it, is now Agnew & Co.'s, was buried in the St. George, Hanover-square, parish ground, Bayswater-road, which was planned in 1764, near to the then Tolmin's farm (see Wallis's map). On August 6 last we saw the later gravestone, amongst the grass knee-deep. About 6 ft. high, the headstone stands beneath a large plane-tree, just 5 ft. distant from the western wall, and close by No. "7" tablet on the wall, about midway towards the north. The stone is inscribed as under:—

Alas! poor Yorick!

Near to this Place
Lyes the Body of
The Reverend Laurence Sterne, *A.M.*
Dyed September 13th, 1768,*
Aged 55 years.
Ah! Molliter Ossa quiescant!

Beneath this are added the following silly panegyrical lines:—

This Monumental Stone was erected to the memory of the deceased by two Brother Masons, for although He did not live to be a Member of their Society, Yet, all his incomparable Performances evidently prove
him to have acted by Rule and Square: they rejoice in this opportunity of perpetuating his high and irreproachable Character to after ages.

W. S.

* Month and day are wrong.

ON Monday last the proprietors and manufacturers of the Grinnell Automatic Sprinkler gave a practical illustration of the action of this apparatus at Ransome's Dock, Battersea. The distinctive features of the device are an elastic valve-seat, which acts like a cup-leather, becoming tighter the more the water-pressure increases, and a rigid valve, so fastened as to relieve the low-fusing solder-joint of nearly all the strain. Encircling the sprinkler or nozzle is a heart-shaped frame, placed in a vertical plane. The valve is held in its place by a curved piece of metal which forms a lever of the third order, the resistance being represented by the soldered joint, the work by the water-pressure, whilst the fulcrum is formed by the end of the lever resting in a notch in the heart-shaped frame. In this way, it will be seen, three necessary features in the design of a successful sprinkler are attained:—Firstly, that the valve will not sprinkle under an excess of pressure when not required to perform its functions; secondly, that the soldered joint is not subject to any great stress; and, thirdly, that the joint is removed from the cooling action of the water. Another advantage accruing from the elastic seat is that the water-joint remains unbroken until the solder is quite melted, and the valve is free to come right away. This is also an important point, as a gradually-opening valve will allow water to trickle through, and so stop further action by its cooling effect. When the company arrived on the ground they found a wooden shed 18 ft. by 18 ft., and 12 ft. high. The floor of this was covered with several sacks full of shavings which had been soaked with petroleum. A match was applied to this highly combustible mass, and in a couple of seconds the whole building was a mass of flame. Four ½-in. sprinklers were fitted, and in a few seconds these began to act, and in a minute or less the fire was fairly subdued. The roof of the

shed, which, of course, was above the sprinklers, was scorched, but otherwise no damage was done. A small turbine is placed in the service, and this sounds a gong as soon as the water begins to flow in the sprinklers, thus giving an alarm. Several representatives of various fire insurance companies were among the spectators, and these gentlemen were of opinion that they could build a fire in such a way as to avoid the action of the apparatus. The only way, however, in which they could achieve success was by making the fire so small that the heat did not ascend sufficiently high to melt the solder, and, as the melting-point is 155 deg. F., it is needless to say the roof was uninjured. As evidence of a belief in the efficiency of this system, it was stated that Whiteley's big shops and store-rooms at Westbourne Grove have been fitted with it throughout, and that the insurance companies have in consequence accepted the risk, whereas before they would not insure the premises at any premium. The manager of one large company stated that the fitting of the installation would be paid for in five years by the saving in premium. The water may be supplied by the ordinary service, but the insurance companies require an additional supply. For this purpose it is usual to fit a tank at a sufficient height, the water being generally raised by a small Worthington pump. Messrs. A. Ransome & Co., of Chelsea, are the agents for the apparatus..

WE regret to learn, from the *Leicester Daily Post* of Wednesday last, of the serious illness of Mr. Joseph Gordon, M.Inst. C.E., the Borough Surveyor of Leicester. For some time past, as has been pretty well known locally, the strain on Mr. Gordon's powers has been exceptionally great, owing to the culminating pressure of his labours in designing and superintending the important flood-prevention works (illustrated and described in our columns about a year ago), the extension and partial reconstruction of the main drainage works, and the new sewage irrigation works now in progress at Beaumont Leys. Mr. Gordon was formerly City Surveyor of Carlisle, and is well known on the Continent in connexion with sanitary engineering. As resident engineer, he carried out the sewerage of Frankfort and other important towns in Germany.

THE *Times* devoted a very reasonable and all-round kind of article, on Wednesday, to the subject of the conservation of Croyland Abbey; a kind of *eirenicon* intended to show how in this kind of duty to a ruined abbey all might agree, the Institute of Architects, the Society of Antiquaries, and Lord Grimthorpe and all. As to the latter, we take it that what he wants is only to be quarrelling with some one, no matter who, so long as he can scold them and advertise "my Book on Building"; but the amusing part of the matter is that the *Times* reminds its readers how satisfactory it is to know that Mr. Pearson has been entrusted with the supervision of the works. "His name is a security that the modest sum at which the necessary expenditure is estimated will be devoted to the preservation of an ancient fabric, and not to the glorification of a modern architect." Just so. But why does not the *Times* carry the same argument into other cases of restoration, and point out what a security it would be if the necessary work at St. Alban's were entrusted to Mr. Pearson, instead of being carried out, in a bungling manner, "to the glorification of a modern" lawyer?

Lectures in Architecture at the Royal Academy.—Mr. G. Aitchison, A.R.A., Professor of Architecture in the Royal Academy, is officially announced to give a course of six lectures on "Roman Architecture" to the students of the Academy, on the following dates:—Monday, Jan. 28, 1889; Thursday, Jan. 31; Monday, Feb. 4; Thursday, Feb. 7; Monday, Feb. 11; Thursday, Feb. 14.

LETTER FROM PARIS.

SINCE our last letter a new strike has supervened at the Eiffel tower. Alleging the increasing dangers and difficulties to which they were exposed as the tower rose higher, the men made demands to which M. Eiffel refused to accede. As time pressed, however, the latter offered an increasing scale of wages as the work went up, and a final bonus of 100 francs to every workman who worked up to the highest platform. This was accepted, and the men resumed work on this considerable increase in prospective wages.* The tower is now at half its height; the question of its decoration is already under consideration, and a warm, reddish tint has been selected for the main colouring.

The constructive framework of all the great palaces on the Champ de Mars is now completed; and in front of their long perspectives of girders and roof lines, along the riverside, stretches a set of smaller buildings, whose incongruous architecture and varied forms have an effect of piquant originality. It is here that M. Chas. Garnier has had reared the specimens of human habitations of various ages and countries: a small town, comprising about thirty "restored" houses, of which not one is of the same architecture and arrangement as its neighbour. Below the Pont de Jena is a Scandinavian house of timber; by its side a Romanesque dwelling, with its round arches and narrow windows; further on a Mediæval house, with a half-timbered gable; a Renaissance tower; a Byzantine house, with heavy columns; and a Russian dwelling, with its bulbous cupola. Then, by the side of an Arabic house, with its flat roof, are seen the huts or wigwams of savages (Esquimaux, Laplanders, Red Indians), and the habitations of Aztecs and Incas. This gallery annexe leads to the esplanade of the Invalides, where the Algerian and Tunisian pavilions are now far advanced, and near them the large building by M. Girault for the Palace d'Hygiene. A little further on the Ministry of War has had a regular citadel built, and fortified with ditches, casemates, and glacis on the old system. Near this is a large circular building intended for a panorama. Of the two panoramas of the Exhibition, the first, of which we are speaking, will transport the spectators to the large "refuge" of the Place de l'Opéra, where the painter, Castellani, has undertaken to group in the footwalks of the surrounding boulevards all the notabilities of Paris, political, literary, and artistic, &c. The second panorama, situated before the façade of the Exhibition, on the bank of the river, will represent a large steamboat of the Transatlantic Company, with a panoramic view of the port of Havre on each side.

It is of interest to note the important part which ceramic work will play in the decoration of the various pavilions on the Champ de Mars, especially in the domes and façades of the work designed by MM. Bouvard and Formigé. The execution of this work will be confided to MM. Emile Müller, Parvillée, Noël Ruffier, and Liebnitz.

The Fine Arts department of the Exhibition, it is now decided, will be divided into six sections, as follows:—

In the Palace des Beaux Arts will be formed the retrospective exhibition of French art since 1789, as well as the exhibition of French and foreign works of art executed during the last ten years (1878 to 1889).

In the Trocadéro will be the exhibition of the department of the Monuments Historiques, including casts, sculpture, drawings, metal work, and photographs.

In the Palais des Arts Libéraux the exhibition of instruction in drawing, and the theatrical exhibition (models, decorations, costumes, mechanism, lighting, &c.).

In the central cupola of the Galeries de l'Industrie, the retrospective exhibition of national manufactures since 1879.

A new line of railway will shortly be opened, partly to facilitate access to the Exhibition, on the left bank of the river. Starting from Puteaux, it will have its terminus for the present at the Champ de Mars, and after the Exhibition is over, at the Invalides. This line, which follows the bank of the river, will serve various localities, and some pretty railway stations are already built at Suresne, St. Cloud, Sèvres, Bas-Meudon, Issy, and Grenelle. Suburban travelling is also to be further facilitated by a new line to be opened shortly between Argenteuil and Mantes, constructed at a cost of about thirty millions of francs.

At Clamart, not far from the new Puteaux railway, rises a great pile of buildings commenced ten years ago, and which is now to be inaugurated. This is the Hospice Ferrari, founded by the Duchess of Galliera. It is designed by M. Ginain, also the architect of the new Galliera Museum, in course of erection. The architecture of the hospice externally, in virtue of its round arches and its portico, may be considered to belong to the Italian Renaissance, while the chapel, with its large mullioned windows, rather recalls the French architecture of the sixteenth century. The building is a fine one architecturally speaking, and very well planned and constructed for its purposes as an infirmary.

From the architectural point of view, there is little to be said, certainly, as to the isolation hospitals which are shortly to be erected in the suburbs of Paris; but the scheme is an important one from a sanitary point of view. Six hospitals for contagious diseases are to be built, designed with great simplicity by the architects of the department of "Assistance Publique." Two of them, intended as smallpox hospitals, will be built to the north and south of Paris respectively. A third, reserved for diphtheria, which makes great ravages in Paris from time to time, will be built on the road to Fontainebleau. At Ivry will be the one intended for measles, and at Créteil there will be a convalescent hospital and a hospital for contagious skin diseases.

The principal façade of the Sorbonne, towards the Rue des Écoles, is just completed, and the interior fittings commenced. The architect, M. Nenot, is to commence next month the large buildings which will extend along Rue St. Jacques and Rue Cujas. This part of the building, the architectural design of which is very simple, is intended for the Faculté des Sciences, and will cost about thirteen millions of francs.

The monument erected in Rue de Rivoli to the memory of Admiral Coligny will also be soon completed. The architectural portion of the monument, which has been built adjoining the chevet of the Calvinistic Church de l'Oratoire, is designed by MM. Sellier and Gisors, and consists of a white marble cenotaph, which will be decorated with medallions and surmounted by a statue of the Admiral, of which we have already published an illustration.* The design will include also two allegorical statues, the work (like the portrait statue) of M. Crank.

The Cour du Carrousel is at last disencumbered of the medley of constructions which have been there so many years. The laying-out of a square can now be commenced, which will give some dignity to the site in default of a building; and one would prefer flowers and shrubs there, certainly, rather than the Museum of the French Revolution, which has been talked of, and which would cost a great deal of money, and present only a very meagre interest, if one may judge by the puerile nature of the collection of the same kind in the Carnavalet Museum.

The Service des Bâtiments Civils, concerning the negligence and inertia of which we have often spoken, is about to be considerably modified in regard to general organisation. In pursuance of an agreement come to between the Ministry of Fine Arts and that of Public Works, all the civil edifices intended for public service will now be attached to this latter department; while all public edifices having a character exclusively artistic, such as palaces and public monuments, statues, triumphal arches, fountains, &c., will remain under the administration of the Ministry of Fine Arts, and will be attached to the Service des Monuments Historiques.

It may not be without interest, in regard to this subject, to say something in regard to the working of the Service des Bâtiments Civils, the administration of which is divided into four offices united under a Director-General (M. Jules Comte). The buildings taken under its care are grouped in four sub-divisions, each comprising about one-fourth of the public monuments of Paris and a certain number of buildings situated in the Departments. At the head of each division is an Inspector-General, having under his control the architects who have charge of the different buildings,

* The difficulties raised by the men, unless they were a mere pretence to claim higher wages, do not give a favourable idea of the courage and stamina of the French *ouvrier*. One can hardly suppose a set of English workmen would strike on the plea of their heads being turned by the height at which they had to work.

* See *Builder* for January 29, 1887.

whose fees are calculated on a basis of 4 per cent on work required to keep the buildings in proper repair, and 3 per cent. on new work or extensive repairs. The architects are each the head of a staff composed of Inspectors, sub-Inspectors, and "conducteurs de travaux" having fixed salaries, and a "verificateur" who receives 1 per cent. on the amount of accounts certified. As a matter of fact, the first division, which comprehends the Departments de l'Ouest, has not its titular head, and there are only three Inspectors-General actually in office. These are, for the second division, that of the south-west and south, M. Charles Garnier; for the third division, that of the Departments of the north and east, M. André; and for the fourth division (Departments of the centre and south-west), M. Diet. The four Inspectors-General compose, with the addition of four temporary members, a secretary, and a "Controleur," the Conseil-General de Bâtiments Civils, presided over by the Minister of Fine Arts, and which has for its mission to give advice upon all questions of art, construction, accounts, matters of litigation, city roads, &c., which are submitted to it by the Ministry of Fine Arts and the other Ministries. The amount expended annually by the Service des Bâtiments Civils for keeping buildings in repair (*entretien*), and for larger repairs and new additions, is about fifteen million francs. This is obviously insufficient for the purpose, and it has required a violent campaign in the Parisian press lately to extract from the Government the sums necessary to prevent the Palace of Versailles from falling into ruin.

In the competition for the Prix de Rome, the Académie des Beaux Arts has given the following awards:—The Prix le Prince has been awarded to M. Convers (sculpture), M. Tournaire (architecture), and M. Leriche (engraver). The Prix Delanoy has been awarded to M. Tournaire; the Prix Pigny to M. Sortais (architecture); the Prix Husson to M. Sortais also; and the Prix Cambacéres to M. Theunissen (sculpture) and M. Leriche. In addition, M. Convers and M. Tournaire, after a sojourn of four years in Rome, will have for three years the benefit of the bursary of 4,000 and 3,000 francs founded by the Comtesse de Caen.

The administration of the manufacture of Sèvres are about to organise an interesting exhibition of paintings, cartoons, and drawings, which have been made for the execution of vases by Mdme. Escalier, recently deceased, who was one of the best artists of the national manufactory.

The world of art has suffered a great loss since our last letter in the death of the painter Boulanger, at the age of 64, and when nothing led to an expectation of his end being so near. He was universally esteemed for his excellent qualities as a man, as well as for his artistic acquirements. Gustave Rudolphe Boulanger was born at Paris on April 24, 1824. He was successively pupil of Paul Delaroche and of Jollivet, followed also the curriculum of the École des Beaux Arts, and obtained the Grand Prix de Rome in 1849. During his residence at the Villa Medici he devoted himself to Latin archæology, which formed the basis of a great many of his paintings, among which we may specially recall "Une Répétition dans la Maison du Poète Tragique à Pompeii." He took for his background the Pompeian house built for Prince Napoleon at Paris, and introduced, in Roman costume, the principal literary celebrities of the Second Empire. He did the same kind of thing in the large picture commissioned from him for the Mairie of the XIIIth arrondissement, where may be found the likenesses of Cabanel, Arago, Guillaume, Dumas fils, Charles Garnier, &c. Among others of his principal works may be named "Julius César à la tête de la X^me^ Légion," "La Via Appia du Temps d'Auguste," "L'Intérieur du Gynécée," &c. His most important work was the decoration of the *foyer du danse* of the Opera House, the eminent architect of which was one of his closest and most intimate friends. It was as he was leaving the house of this old friend that he was seized with a sudden and fatal illness, leaving behind him the recollection of a laborious career entirely devoted to art. He had obtained various medals in different exhibitions, and the Cross of the Legion of Honour, and was made a member of the Institut in 1882. He was also a professor at the École des Beaux Arts.

Boulanger has painted also a number of Oriental scenes, among which class of work may be found some of his best productions. Unfortunately, the precision with which he painted the minutest details often imparted to his pictures a certain hardness, which was especially perceptible in his later works, not least so in the "Esclave à Vendre" of this year's *Salon*.

MISTAKES IN ARCHITECTURE.*

"We are all of us wrong sometimes": so spoke, in the hearing of a friend of mine, one of our best-known humourists and men of letters. They were together on a steamer, and were watching the floundering of a sailing-boat being navigated by a mariner who clearly had made a mistake in handling his craft. The famous man had a young daughter with him, and she asked, "What,—pray what,—is he doing, father?" and got the reply, "He is wrong, my dear; we are all of us wrong sometimes."

No truer word was ever spoken; and, if for no other reason than because it is so universal a fate to get wrong sometimes, mistakes would be justified as a subject for a lecture. But there is a much better reason for my selection of this subject. Fore-warned is fore-armed; and, though I cannot promise you an immunity from all mistakes, I can, I hope, point out some into which there might perhaps be some danger of your falling, and against which you will be likely to guard if your attention has been called to them.

A mistake is always an evil, and often a most serious evil. There are mistakes which a man may make inadvertently, and without blame, but which yet entail consequences more serious and lasting than those which follow many a crime. Shakspeare paints Wolsey as arrogant, unscrupulous, shrinking from nothing so that he might compass his ends; yet it is not any of the dark deeds with which he is credited that ruins him, but the blunder of laying a paper intended for his own eye alone before that of the king. It is only a mistake when a signalman gives the wrong signal, or a pointsman turns the points the wrong way, but it may lead to the slaughter of a score of innocent persons; or, to come nearer home, it is only a mistake to miscalculate a girder, or misjudge a foundation; yet it may lead to the ruin of a fine building and of its architect's career.

If, then, you succeed hereafter in steering clear of even a few mistakes in consequence of their having been pointed out here, that will be ample justification for our spending an hour together about this somewhat uninviting subject. I propose that we shall take up in the first place students' mistakes, and secondly those of architects; and, though I will try to be orderly, I greatly fear that, as mistakes are subject to no rules that I know of, a discourse on them must of necessity be rather an irregular lecture. We shall, of course, have to leave unnoticed far more mistakes than can be considered; mistakes will therefore be selected which are, in the nature of things, not unlikely to occur. Many of them will be such as have actually come under my notice; and, in clearing some of them up, I shall ask leave now and again to borrow a hint from the proverbial wisdom of our forefathers.

There is one peculiarity about mistakes, and that which originates them, which makes it not a little difficult usefully to consider them in a mixed assembly. I allude to the difference in mistakes traceable to the wide differences in temperament, training, quality of mind, and habits between different men. Put two men to the same test, and they act differently. If that test be some circumstance in architectural study or practice, where there are several ways of going wrong, and but one of going right, each of them may make a mistake; yet it is all but certain that they will not both make the same mistake; they may each take a wrong road, but the roads will go in opposite directions. In acting as assessor in architectural competitions I have again and again seen this. One designer, for example, who is timid and perhaps inexperienced, with but cramped ideas, falls into the mistake of producing a formal, cold, spiritless design, correct perhaps, and possibly economical, but showing so little invention, and with so little worth remark about it, that it has no chance. His neighbour lets loose a fancy and fertility of design of which he is the fortunate possessor, utterly regardless of considerations of expense or suitability, and produces a splendid plan for a building that could not be put up for three times the money, and that, if erected, would be quite inappropriate to the site and purpose, and of course his failure is as complete as that of his rival.

Each of these two competitors has made the mistake of failing to understand what was wanted, but the failure has been in opposite directions. No. 1 has fallen short, No. 2 has overshot the mark. I shall have occasion in the course of the lecture to mention other mistakes which, so to speak, hunt in couples from this reason, and we may rest assured that many a man who is safe not to make a mistake in some one definite direction may be in great danger of running to the opposite extreme.

Students' Mistakes.

To turn now to students' mistakes. The one which first seems to present itself is neglecting opportunities. This, when wilfully done, is vicious; but it is a mistake often made out of pure thoughtlessness. Many a youth fails to realise that when he left school or college and entered an office he embarked upon a quite new career, and that he has to acquire knowledge in a different way, and to enter upon a totally distinct education. At school or college the schoolmaster or the professor teaches; in an architect's office the principal gives opportunities. The schoolboy, or, to a certain extent, the collegian, gets into difficulties if he omits or neglects to learn. There are no equally immediate uncomfortable results if a pupil neglects his opportunities; but, nevertheless, the loss to him is serious—in some cases irremediable—though in most instances, as I have said, I believe this neglect to arise entirely from failing to comprehend the situation, and not at all from wilfulness or idleness.

Every chance of taking part in what an architect or his assistant have to do in actual practice is an opportunity—even copying a letter, making a tracing, or entering a message in a call-book, is a lesson if the pupil chooses to learn from it; much more valuable are the chances of seeing work and materials. The nature and use of these opportunities have been dwelt upon very thoroughly in some of the published addresses of recent Presidents of the Architectural Association, and, to some extent, by myself on a former occasion of this sort; so that I hardly need pursue the topic further, but may turn to mistake number two.

It is a great mistake to lose heart and give up. I believe there comes to most young men a time when the novelty of their change of occupation and position has worn off and the irksomeness of routine is being felt, with possibly the depression due to being in lonely lodgings, instead of at a bright home or the sixth form of a busy school, and the wish to give up rises. Fortunately, in most cases this is practically impossible, and the student feels obliged to stick to his work, gets over his difficulties, regains heart, and goes on. But time and tone are often lost in the struggle, and it is a thing to fight against. Rest assured that, if your profession has been chosen with any degree of care, you are not likely to better yourselves by a change, and that to begin business life by losing a year or two, and starting afresh with the consciousness of a failure behind you, is, to say the least of it, unfortunate. Of course occasionally a student turns up of whom one must in honesty say that the greatest mistake of his life was adopting the architectural profession. If a man is thoroughly unfit for a calling on which he has entered, by temperament, training, and habits, and he and his friends become honestly and deliberately aware that this is so, of course the only wise thing to do is to stop. But for one person who has really made such a mistake, there are probably a score who, for a time, fancy they have done so; therefore it is far safer to urge you to resist giving up than to suggest it as a good thing to do. Remember that "A rolling stone gathers no moss," and "Faint heart never won fair lady."

It is not, however, only the pupil who is apt to lose heart. There is a good deal of discouraging and difficult business to be got through by many young men in the interval between their articles and their start in practice, and again in the early days of practice. In all these difficulties, whatever you do, do not allow yourselves to be cast down. Constancy to a career is a matter to some extent, nay, to a very great extent, under a man's own control, and the man who succeeds is the one who resolves stoutly that, be the rebuffs or disappointments or perplexities never so trying, he will not allow them to master him, and who carries out that resolve.

* By Professor T. Roger Smith, F.R.I.B.A. Being the opening lecture at the commencement of the session 1888-89 at University College, London.

The young man, perhaps fresh up from the country, who goes round to the offices of one architect after another, and who answers every advertisement in the papers in the hope of getting employment, is on a very trying quest. But he is doing what most of us have had to do before him, and he is engaged in a way which has procured for many a man the opportunity of earning his daily bread, and for some has proved the first step in a career that has led to brilliant success. One of the most distinguished professional men of the day began his London career, when an unknown foreigner in our city, by answering the advertisement of a leading architect who wanted a young man to do nothing but trace in his office. This humble post he took, and filled sturdily till it was found how well he could do very much better work; and now his name is on every one's tongue. The proverb to take up when seeking for employment is, "Leave no stone unturned."

To the more advanced man, who is feeling,—as who among us does not sometimes feel?—that it is very hard to get on, I may perhaps offer the suggestion once made to me by a very successful man when I was complaining that I found it difficult to get on. "Do not forget that the difficulties are your security,"—a consideration which has so much in it when one comes to turn it about in one's mind that I do not think any words of mine can add to its force.

One more proverb occurs to me, "Everything comes to the man who can wait." Everything that can come of itself seems to obey this law. Success is not quite included here, because,—at any rate in professional life,—success can only come to the man who is fit to succeed. But granted the fitness (and I trust you will all fit yourselves for success before your student career comes to a close),—granted the fitness, I repeat, even in so crowded a profession as ours and so enormously difficult a place as London, success may fairly be expected to reward each man who can go on bravely struggling for a sufficiently long time and who will not lose heart.

Once more, it is a mistake to lose heart if any particular attainment seems to elude you. Say you decide to draw the figure, the most valuable auxiliary to high-class architectural draughtsmanship, and you find it very difficult, or you decide to draw perspective, and you find it very perplexing. The thing to do is not to give up, but to go on; and if the difficulty takes twice the time and twice the trouble which it appears to have cost some comrade, believe me the acquisition is more than twice as advantageous to you, and indeed more than twice as necessary for you as for him, so that your double trouble and double time have been well bestowed.

It is a mistake, if you have the opportunity of choosing what work you will do,—an opportunity which to some extent a pupil often enjoys, though an assistant seldom,—to stick too close to one thing. As far as possible, try to get a share in each sort of work that is in the office, and if it is work that you are not used to, and find difficult to perform, so much the more instructive is it likely to prove. It is also a mistake to shirk the work you do not fancy. A young friend of mine complained to me once that he was given a good many letters to write when he thought he ought to be drawing. I pointed out to him that when he was in practice he would have shoals of letters to write, and that the art of writing a good business letter does not come of itself,—far from it; so that he ought not to object to have the opportunity given him of practising his hand upon what is as necessary a piece of attainment as draughtsmanship.

It is a mistake to take up too much that is outside your profession. Every young man ought to have some athletic pursuit,—cricket, tennis, cycling, walking, riding, boating, swimming. But it is distracting to take up or keep up too many such pursuits, or give too much time to those you select. Similarly, some hobby or pursuit that is not exactly architectural, such as a certain amount of reading and a certain amount of society, are good, and in moderation desirable. But learning a profession is an arduous task, and the men who will succeed best are those who give up their evenings night after night to pursuits akin to architecture, such as a school of art, the Architectural Association classes and meetings, or working up privately book after book on construction, materials, &c., or practising design, or drawing, or working at the joiner's bench. You will find in many other professions the demands made upon the time and attention of students leave them for years little leisure for any outside pursuit whatever; and I do not think architecture requires less thorough devotion of time and power than does medicine, or law, or commerce, or that there is less to learn in architecture than those other professions.

It is a mistake not to sketch. Going and looking at architectural buildings is just a little better than not seeing them, but not of much permanent service. Photographs, whether you buy them, or, what is worse (because it takes so much time up), make them, are almost worthless as substitutes for the results of your own sketching and measuring. What you draw you look at,—you, to some extent, understand, and you generally remember, while the drawing will always remind you of what you saw and tried to fix on your paper. Some young men are disposed when they get a summer holiday to boat or bathe, or ramble about, as if their daily occupations as architects were of no more interest to them than those of a linendraper, and ought to be forgotten instead of being fostered at holiday times. Holidays are the best opportunities of architectural study possible, and, let me add, as soon as the first difficulty of sketching architecture from buildings is got over, sketching tours are the most enjoyable holidays possible. More can be learned in a fortnight's well-directed sketching than in months of work over books and drawings, and I will engage to say that the architectural traveller gets twice as much enjoyment out of any trip which takes him to cities and towns of interest as any of the ordinary travellers he will fall in with on his route.

It is a mistake to sketch or to study alone, if it can be avoided. *Noscitur a sociis*, which, being freely Englished, is "Birds of a feather flock together"; and, though a man's books and drawings are not bad companions, human comrades and friends are more useful, if only they be of the right sort. The best comrade for a beginner is one who is more advanced than himself, and, fortunately, the tyro, if teachable, is far from being the worst companion for the advanced student. Habits, circumstances, and opportunities of course differ, and under certain conditions a man must study alone; but much time is often lost, and mistakes are apt to be made by those who work alone, and especially if they work without guidance, The opportunities of getting good instruction, and of associating with other students, are fortunately on the increase, and are so well known that I need not recapitulate them here; but I will add that studying together in this class-room has been, as I have reason to know, a beginning of student friendships, some of which have lasted through life.

On the choice of subjects of study I have not much to point out, but I cannot forbear saying that it is a mistake to despise surveying. Many students consider that they ought to prepare themselves for purely architectural practice, and for that only, and that everything which can go by the name of surveying is unnecessary, if not beneath them. They believe surveying to be, at any rate, wide of their line, and that it is to be accordingly shunned; but when they come to practice they will find that a certain amount of surveying work will come in their way, and must either be done or handed over to better-prepared persons. I am not now speaking of quantities, the preparation of which is, to a large extent, a distinct work; but of all that relates to the examination and care of existing buildings. If you reflect that in any city or town for one new building there are hundreds already in existence, and that each of these hundreds is likely to be repeatedly surveyed, now for repair, now for alteration or enlargement, now for sale, or purchase, or rating, and possibly again after injury by fire, you will see that the mass of surveying work in the aggregate is considerable. Much of this can be better done by an architect than by any other person, and from time to time every architect is asked to make surveys under circumstances which make it clear that if he cannot or will not, valuable connexions will go elsewhere. Nor is this all. Architectural practice is always fluctuating, and not infrequently the question of surveying work or none is a question of bread-and-butter or none. So do not consider that surveys are nuisances or interruptions, but pick up what you can about them, and, if a chance offers, by all means try to see a little land-surveying. A very few days in the field will make the methods of working clear to any one who has not forgotten his trigonometry.

There is a companion mistake, one, I mean, of an opposite character, which is sometimes made, and which may as well be noticed. It is the mistake of neglecting design. Designing is the highest part of an architect's work, and it is work that he must be able to do. I am quite aware that it is no use for a beginner to try to design. He has no materials yet, and it would probably be more likely to do him harm than good if he attempted to originate out of the emptiness of his knowledge something that should represent a building. But designing does not come of itself, and yet many students go on for years accumulating knowledge and experience, and make no attempt to exercise themselves in design. Whenever one has made a piece of architecture one's own by studying, sketching, and measuring it, it is a wise course to try to design a variation upon it, making use of the same features, details, and ornaments, but rearranging them. This may be done if you like upon a single feature and an extremely small subject, and from such beginnings there are many ways of going on. What I wish to urge here is that it is a mistake not to begin.

The last mistake with regard to study that I feel bound to name is the mistake of not going on the Continent. This is, perhaps, not so prevalent as it was in the height of the Gothic revival time, when many good students believed that if they could thoroughly master English Gothic they need not attempt more. Now that Renaissance of some sort is being more generally practised, more men go to Italy and Greece, but still the number is small in comparison with the number of pupils and students. This, I repeat, is a great mistake, and if you say that it is a serious expense and absorbs much time—which are the two things that can be said against a continental tour—the answer is, that as to time it cannot be better spent, and as to money, there are few liberal professions where some expense is not absolutely necessary at some time, while the scholarships and studentships obtainable give to a few students in each year substantial assistance. Certain it is that this period of continuous study in other countries, and under other suns, seems more than anything else to make the difference between the mere draughtsman and the accomplished architect.

Examination Mistakes.

Every professional student has now to look forward, more or less, to examinations. There are many callings in which these have been pushed too far; happily that is not the case, at any rate as yet, with architecture. We have, however, enough examinations and competitions for prizes to bring mistakes in examinations well within our scope this evening. The prime mistake is to go up unprepared, in the hope that one may succeed by a fluke; or, perhaps, in the mistaken belief that one knows the subject so well that no preparation is needed. I have had a rather long and rather wide experience as an examiner in architecture, and I can assure you that the degree of unpreparedness with which some candidates are content is perfectly astonishing. Perhaps a specimen of the worst papers I ever had to correct might be more amusing than impressive; but I am sure that many students of schools of art offer themselves for examination simply on the chance that by a fluke they may get through, and have signally and dismally failed accordingly.

In the case of the Institute Examination for the Associateship, or that for the District Surveyorship certificate, long and careful preparation is needed, and for each of these a spice of practical training is wanted. The would-be Associate must have some practice in design, and must make himself personally familiar with some specimens of ancient architecture, and the would-be district surveyor must have some experience of the supervision of building works. Similarly, where drawings have to be made with a view to prizes offered by the Institute or the Association, a candidate, in order to have any chance, and to gain any good from entering on the competition, ought to have some experience of drawing, and, if the prize be for a design, some notion of designing before he ventures to compete; though, as these are competitions and not pass examinations, failure to succeed does not involve the same discredit, and ought not to have the same discouraging effect on the candidate as failure in a pass examination.

It is a mistake, let me very emphatically say, for any student attending the courses about to begin here to avoid the final examination or any intermediate examination. Of course, the prizes are only few, and, as far as they are con-

cerned, the examination at the end of the session is competitive; but the certificates are given to as many as get more than a certain proportion of marks without limit of number, and so there is for each one a chance of having his ability and diligence recognised, and the opportunity which the class examinations offer of proving to yourselves that you have learned and retained a fair amount of what I try to teach is, in my opinion, of great value.

In the examination-room it is a great mistake to fire off a piece of knowledge that has nothing to do with the question, simply because you know it. As, for example, suppose you have carefully got up the tracery of windows of different periods of English art, and no question is asked about tracery, but a question is asked about mouldings. If in answering that question you drag in the tracery and spend half-an-hour over it, you do more harm than good. No examiner who knows his work will give a single mark for statements that are irrelevant and do not answer any part of the question, so you get no marks for your tracery; meantime, the writing and sketches have wasted you half-an-hour, during which time, had you been answering other questions to the best of your ability, you would have been earning marks.

Next to the mistake of lugging in irrelevant matter by the head and shoulders comes the mistake of giving too much time to one or two questions. A paper in which there is no proportion among the answers is one very difficult to mark, but which, from the very nature of things, is sure not to get so many marks as one containing the same amount of writing and sketches, but where more questions are taken, and a clear, condensed, yet correct answer given to each. It is a mistake, also, in architectural examinations not to illustrate the paper of answers by sketches whenever possible. If, unluckily, you cannot make tolerable sketches, it is very much to be regretted, and you had better stick to written replies; but if you have any reasonable mastery of the pencil, do not forget to introduce sketches, and the better they are, the better your paper, and the higher will it be marked. It is a mistake—and one often made, I fear,—to suppose that examiners in our professional examinations are anxious to trip you up, and that they lie at the catch and will be heartily glad if, by some clever and misleading device, they unfairly entrap you into a blunder. The object of the examiners is to bring out what you know and what you do not know, and it is with an anxious sense of serious responsibility that they carry on this important work. Rely upon it they had rather be convinced that you are fit to pass than that you must be turned back, But rely, also, upon it that they will not pass you till they are so convinced.

Again, it is a mistake to suppose that any answer which is not wrong will do. If a question involves a difficulty, the answer which evades that difficulty is very differently considered from that which attempts it, even if it should fail to solve it perfectly. For example, in a recent examination I gave the dimensions of a bay of flooring fit to carry a certain weight per foot, and required an iron girder to be calculated of a fixed span and strong enough to carry that bay. I got more than one reply in which the calculation was attempted, and was carried out on the right method; but the right result did not come out owing to errors or omissions in calculating. I got one reply, in which, after stating the number of tons to be carried, the answer went on saying, "I should adopt a rolled iron joist, so many lbs. to the foot." This answer was probably arrived at by some rule-of-thumb method; it was not far from being practically correct, but there was no attempt made to work out the calculation, which was the difficult part of the question, and, of course, I could not give such good marks to this reply, which avoided the difficulties, as to those in which the students had tackled them to the best of their ability and by proper methods.

Architects' Mistakes.

We have now reached architects' mistakes, and there seems to be good reason for occupying such time as is left chiefly with mistakes in practice. Still, there are one or two remarks on design which I am tempted to hazard, and which I think can usefully be made. Remember, then, that it is a great mistake to attempt to use in designing what you do not understand. Just as in Egypt the captive Israelites could not make bricks without straw, so you cannot design without materials,—*i.e.*, without being familiar with the forms, features, and ornaments of the style in which you are working, and with the manner in which those elements have been put together by successful architects before your time; and without, moreover, being practised in the application of that knowledge.

If you want to see examples on a large scale, numerous, costly, and distressingly instructive of what making architectural bricks without this sort of straw comes to, just walk through the various streets and courts of the City of London. Side by side with some of the best buildings of our best architects you will see costly works, substantial and pretentious, designed by men who can have had no intimate knowledge of, and scarcely any training in, our art, and who have in most cases been employed because they were known to moneyed men as trustworthy surveyors. Such have doubtless built soundly, but their works are architecturally failures. Getting together this straw—to return to the old figure—is no easy task. It takes a long time and a good deal of pains to gather information enough, and to develop skill and experience enough, to make a really good architectural design, and to work it out in all its details; yet it is unwise to start practice till this can be done. Sometimes circumstances or the offer of work render it almost necessary for a student of only a few years' standing to begin on his own account; but it is very rare for those who start prematurely to succeed in doing good architecture, unless they have the resolution, after completing their first works, to stop, and go abroad and finish their studies, and then come home and resume.

I am tempted to add that a new style is a mistake; not that a new style is in itself impossible, but that it is impossible to you or me. It is idle to suppose that the genius of any one man could successfully work out a new style which his fellow-men would feel to be appropriate. Looking round on the motley variety of styles which prevail in modern Europe, we are tempted to believe that it is a matter of no moment what style be brought in and used. Yet a little observation will show you that it is not so. No architectural style is practised in England (to limit our notice to the country under our eyes), various as the styles that are or have been in vogue may be, unless its roots are deep and wide in the history or the sympathies of the English people. Greek, which was the style of our grandfathers' time, was welcomed at a time when every man of education in England was, or wished to be thought, a classical scholar. Scholarship is on the wane, and there is now scant encouragement for the practice of Greek architecture, though to learn it is as needful as ever. Italian Renaissance is intimately connected with modern as distinct from Mediæval feeling and life, and has become universal in this as in other countries of Europe, just because it is identified with that which England has in common with every modern European country. Gothic is the architecture which was a native of this country during the whole of the Middle Ages. Queen Anne is Dutch architecture, and belongs to a set of things which became incorporated into our national life at the Revolution, when Holland gave us a king. There have been, on the other hand, various attempts to introduce other styles with which there exist no such links, but the attempts have failed. For example, no permanent result followed the efforts of that most able architect Owen Jones to introduce Mahommedan architecture into this country,—efforts in which he was virtually without followers. If there is any truth in these views, and I believe there is no gainsaying them, we have no reasonable ground for supposing that a new style could live and thrive, even if a great man had the genius to devise such a thing. If it comes it will grow, not be made.

Every apparent novelty in architecture should be viewed with great distrust as more likely to be a mistake than a success. That novelty is both possible and desirable is self-evident, but beware of what seems to you to promise to be extremely and strikingly novel. It has, probably, been tried before, and given up as less good than the received way, or, if that be not the case, still there is great risk of its being the blemish instead of the blossom of your work—a mistake instead of a discovery. The one defect of importance in St. Paul's Cathedral occurs at the crossing of the main avenue and the transepts—the one part where its great architect has departed most widely from the practice of other church-builders, and has, in the search for novelty, sacrificed more than he has gained, clever though the disposition of the piers that carry his dome undoubtedly is.

Mistakes in Practice.

In practice—that is to say, in the practically carrying on of the profession of architect,—no more grievous mistake can be made,—nay, I think, none so grievous,—as taking bribes. An architect who accepts illicit commissions, or does nominal work for large fees, or who allows any other of the expedients by which receiving a bribe is made to look as if it were a business transaction, to be practised upon him, has sinned against the very first duty of a professional man; he has sold that independence which ought to be his most-cherished possession, and has put himself under the thumb of the very persons whom he ought to control. The wisest of mankind says, "A gift destroyeth the heart," and it is not possible to be more forcible, more terse, or more true. There are sure to be times when very specious proposals will be made to most of you, and when it may appear almost Quixotic to decline money which you sorely need; but whenever any case occurs in which you honestly doubt whether the transaction is one for you to agree to or not, I will suggest a practical test. Imagine yourself cross-questioned as to the entire affair by some such master of the art as Sir Henry James, before Mr. Justice Hawkins and a jury in open court, and if you at all doubt whether you would come off with credit, pray take that as an indication that the doubt is well founded, and the proposed transaction should be declined with thanks.

Anything that is in any way unfair is a mistake as well as reprehensible. It is wrong; it is also bad policy. Believe me there is no truer word than that "Honesty is the best policy." It is both dishonest and a mistake to get work away from a professional brother, or to undersell the profession by working at a rate below the recognised and fair rate, and it is equally a mistake to overcharge a client. Either of these may be expected to bring an inevitable train of bad consequences, a retribution, in its wake. It is, generally speaking, a mistake to work for nothing. You may occasionally do it in the case of charities in which you are interested, but I think a guiding rule should be not to do it in any case except where the work is so in your own connexion that under any circumstances it would come to you. To do work for nothing, and thereby deprive some other architect both of the work and the fees, is extremely bad.

I think there remains no worse mistake to note than temper. Temper is a mistake,—a ship without a rudder, a horse without a rider, or a stream that has burst its banks, are apt illustrations of the condition of a man of business who has lost his temper. Above all things an angry letter is a mistake. Make it a rule never to write a line while you are angry; for, somehow, an angry man's pen seems dipped in permanent gall rather than ink, and his written words unluckily have not the same chance of being either promptly answered, and then forgotten, or good-naturedly overlooked, that hasty spoken words often have. A letter written in heat is read, you must remember, in cool blood. If something raises your wrath, and you sit down and fire off a withering epistle, the best thing you can do is to put it in the fire there and then; the next best, to keep it twenty-four hours and then reconsider it; and the next best, to show it to a judicious friend.

One in high station, who had been much irritated, and had written a splendid and stinging reply, took it to the most influential man whom he knew. The chief—I think it was Palmerston—read it right through without a word. "Got a copy of this letter?" "No." "Not even a rough draft?" "No. I wrote it straight off." "Very injudicious letter. Much better burn it"—and, suiting the action to the word, the great man put it into the fire, and coolly held it there with the poker till there was no shred left. That was the action of a true friend.

I must, at the same time, point out that just anger is not the same thing as giving way to temper. The ability to exhibit indignation at the right moment, if kept perfectly under control, is very useful to one who has to supervise works or direct men. The just anger of a superior is generally dreaded, and to an extent far beyond what one would expect or can quite explain. If, therefore, you are able at the proper moment to show an offending artisan, foreman, contractor, or tradesman, that you are justly and with good reason roused

to anger, it will generally help you in the control of the works under your direction.

My reference to an angry letter as a mistake makes it suitable here to add that we are liable to make mistakes by writing where we ought to speak, and speaking where we ought to write. Writing is quite permanent; therefore it is far more fit than our fading memories to record anything that should last. It is quite inelastic, quite unyielding; so it is unfit for anything of the nature of give-and-take. In all negotiations, explanations—above all, whenever there is a difficulty or ground for dissatisfaction,—see people, at all sacrifices, in preference to writing them. At such times it is a mistake to write. On the other hand, if any specific order has to be given, if any definite objection or complaint has to be made, or if any agreement has to remain in force for any length of time, it is equally a mistake not to put it in writing. Your order, your complaint, your contract may often be originally done by word of mouth; but, in such cases, they should be afterwards repeated in writing, for accuracy's sake.

In architectural practice delay is a mistake. It is not always possible to be prompt, but it is far more possible than persons who habitually procrastinate are willing to believe, and from first to last it will greatly add to your chance of success if you are prompt. At the first inception of an undertaking, whether the client be eager or the reverse, it is equally prudent to do something at once. The eager client is baulked if he find nothing done after a short time,—perhaps changes his mind as to doing the work at all, or more possibly changes his architect. The lukewarm and indifferent client, who might by a promptly-prepared sketch have been encouraged to go on, is disheartened, or turns to something else, or postpones or abandons his intention. Were I to trace the work of an architect all through, it would be easy to show that at every succeeding stage delay is a mistake, though I am bound to admit that it often can hardly be avoided.

Carelessness is another mistake, and one into which not a few men are apt to fall. The saying is attributed to Goethe, that "Genius is the art of taking pains." The common notion of genius is that it can do without taking pains. I do not ask you to accept this definition of genius as exact, but it covers half, and more than half, of the truth, and it would, I think, be perfectly true if you altered the wording and said, "The secret of success is the art of taking pains." Watch a successful man in the excercise of his art or pursuit, whatever it may be; you will see him all attention, all devotion to the business in hand. Consult an eminent physician, and you see by his questions, his air of concentration, his whole method, that for the time being your constitution, your ailment, and what to do for you in order to relieve you, occupy his entire and undivided attention and thoughts. It is chiefly this habit and power of concentration which has made his pursuit of medicine successful, has enabled him often to baffle disease and restore health, and has gained him reputation.

Read any good life of any prominent public man (as, for example, read Mr. Street's life lately published), and you will see what incessant, eager toil and watchfulness occupied every hour of his day, and his night too. Nor is it less easy to remark in recreations that success can only be secured by great pains, however clever you may naturally be. Watch an angler who is known to be habitually successful, his keen attention, his constant thoughtfulness about tackle, flies, water, the long hours he will devote to fishing, and the eager pursuit of his game. A champion player in any athletic game, rowing, cricket, tennis, football, rifle-shooting—what constant practice! what a watchful eye for every turn of the game, every detail of the pursuit! Now if you are to be successful in architectural practice, you must set about it in the spirit, temper, and method of Grace at his cricket, or Renshaw at his tennis, or a Queen's prizeman at his rifle-range.

It is, however, possible to throw one's self into the interesting part of a pursuit, and to remain indifferent to details that do not of themselves attract or that seem insignificant. This, though of course better than being languid and careless about the whole business, is likely to lead to trouble. In the conduct of works, then, it is a mistake to neglect small matters, though it is equally a mistake to fuss. In every building there occur a certain number of apparently little points which must receive the architect's careful attention, but which one is naturally more inclined to leave to others or to chance than the questions that affect large parts of the fabric. The difference between the important and the unimportant does not, however, lie in their magnitude, or their cost, or their conspicuousness. The main walls are a costly part of the building, but they may be considerably damaged, decayed, or mutilated without a tithe of the inconvenience to the inmates which will occur if their chimneys smoke, their taps yield nothing but lukewarm water, their ovens will not heat, or the water runs off from their cisterns. The same thing is often true of the artistic effect of your work. You have, let us say, a Gothic church in hand, and labels over the windows springing from carved bosses. You carelessly place the bosses below the springing line instead of above it, or you in ignorance draw them so. That small blunder produces exactly the effects on the eye of a cultivated observer that would result to his ear from your talking about *hart* or *harchitecture*, and, in its way, the proper placing of that one detail is as essential to the success of the design as the most ambitious or elaborate of its features. It is therefore a mistake to consider that any single thing essential to your building is unimportant or may be safely neglected.

There is, however, an opposite; fussiness is a mistake. It is fussiness to visit a building too constantly, or to interfere for the sake of interfering. You must not forget that if, as architect, you have the power of making alterations, every alteration, even if it be an improvement, means delay and expense, and that delay and expense are among the worst evils that can afflict a building. One of the most troublesome and unsatisfactory disagreements I ever had to unravel grew out of the architect, a man of real ability, having little other work in hand, paying a visit at least every other day to the works, and never going without ordering something to be done or undone. The accumuated effect of these orders was months of delay and claims without end for extras, while for all practical purposes the building would have been quite as serviceable if carried out exactly as shown in the original plans and specifications, without any of the modifications and improvements.

I am quite aware that one cannot expect people's minds to cease working when once a contract has been signed, and that it is proverbially "never too late to mend"; but, on the other hand, "you may buy even gold too dear." "A rolling-stone gathers no moss," and there are few improvements which are really worth the cost, delay, and annoyance that come of interfering with a contract which has once been settled and accepted. In short, generally speaking, variations are a mistake.

Mistakes in dealing with your clients are especially to be guarded against, because they generally injure your prospects in life, yet they may occur in so many different ways that it is impossible to catalogue them. Many, if not most, instances of miscarriage between clients and their architects appear, however, to start from one root, namely, from mistaking the duty you have to discharge, or forgetting to keep up the proper relation of architect and client. Your duty may be described thus: to form a correct idea of what your client wants and wishes, and to do your best to obtain it for him. Your relation to him is purely professional, and not that of friendly intimacy, or equality, or good fellowship, or boon companionship. There are cases where an architect forms an idea of what a client wants, but one which does not correspond to his wishes, and then there is sure to be dissatisfaction. There are cases where an architect forms a notion of what a client wishes, but fails, till too late, to realise that it is not what he wants. The result again is dissatisfaction. There are cases in which the architect troubles himself little about either the wants or the wishes of his client, and works out what in his judgment they ought to be. Same result. Lastly, it has sometimes happened that the architect and the client, or one of them, have forgotten to maintain their intercourse on the proper professional footing, and if any cause of disagreement arises these cases end in the bitterest of quarrels. Professor Cockerell,—a prince of architects,—used to say to us, "Be a gentleman among artists and an artist among gentlemen."

As one illustration of, perhaps, the most common form in which this sort of misunderstanding of the architect's duties develops itself, I will take the case of a dwelling-house. The architect busies himself to learn what his client's wishes are, and he takes no small pains to put them into shape, and he, perhaps, designs something which is very near to what his client would like. But he neglects to realise exactly what his client wants. Let us suppose that his client is a man of moderate means, who cannot trench upon his income, and who has, let us say, 2,000*l.* to spend, and that what he really needs is the best house that can be had for a couple of thousand pounds, all which his architect might have found out had he taken the trouble. When the lowest estimate for the design comes in at over four thousand, the whole thing is abandoned in chagrin and disgust, and the architect too late realises that he ought to have found out what his client needed as well as what he wished.

The relationship between client and architect involves the necessity sometimes of very plain speaking, and the more thoroughly professional the bearing of the architect has been, the more thoroughly is it possible for him to discharge this sometimes painful duty with perfect effect. For example, in the case I have suggested, had the architect quite realised the case, he would at some period have had to say, "You cannot within the limit of expense that is prudent build anything either so ornamental and so roomy as you want; the design must be plain, some rooms given up, and the others kept small," and so on. Whenever any such necessity arises, believe me, it is a mistake to shirk or postpone the unpleasant duty. Meet it squarely and fairly and with good temper.

In dealing with those employed on your works, it is a mistake to suppose that every contractor, tradesman, or artificer is a thief or an extortioner, and every quantity surveyor a kind of contraband agent. I have put it strongly, but the suspicious temper of mind at which this remark points goes sometimes far towards a tone of feeling as exaggerated as this. The fact is, that your contractors and tradesmen are engaged in one of the most complicated and difficult businesses possible. Their motive for carrying on the business is to make a profit, and you should look upon it as a matter for sincere regret if a profit is not made by the contractors on your works. You and they are engaged together on the difficult task of erecting a building, and if originally you know them to be respectable, by all means treat these people as co-operating with you, and aiding to give reality to your designs, which is their real position, and do not suspect unfair dealing till some proof of it begins to show itself. Such a course will be much nearer the fair and proper mode of administering a building. While I recommend this tone of mind I do not recommend that you should cease to be viligant and careful. It would be quite as great a mistake to abandon watchfulness as to abandon confidence gratuitously, and it would be a departure from the line of conduct which your duty to your client prescribes to you. It is, perhaps, hardly necessary now to say anything about quantity surveyors, but I know that when I began practice, there was a kind of uneasy feeling in the minds of some of us, as though quantities were a kind of illicit trading, and those who prepared them akin to smugglers. If any of you share these notions now, permit me to assure you that they are a mistake, that the profession of a quantity surveyor is a most honourable and confidential one, and that the work they do is now indispensable to the conduct of building operations of any magnitude or complexity, and the assistance they render to the architect very valuable.

This mention of contractors and surveyors will serve to introduce another subject that should be noticed. It is for a beginner a mistake to employ second-rate or unknown men, either as builders, manufacturers, or quantity surveyors. When you have established your position and gained a reasonable amount of reputation and experience, do as you like, but in early days you cannot afford to employ people who are not first-rate. It is of vital importance to run no risk of failure in your early works, and the employment of thoroughly reliable persons will greatly diminish that risk, and their known position and trustworthiness are a great safeguard and help to you if any part of their work should go wrong; and to some extent the same caution is a prudent one as regards new materials and untried modes of construction. A fortunate accident on the very first matter of any importance ever put into my hands revealed to me the value of employing known men. The work came from a man of business in the country, and I was, I know, looked upon with distrust by his London agent,

who saw me for him, as young and untried. Fortunately, after making out some drawings and a specification, I got an estimate from a contractor of good repute, and I well remember how, when I went with the whole to my new client's agent, his face brightened up when he saw the signature of a man whom he knew well as competent and trustworthy, and by whom, ultimately, by and by, the work was excellently done. I urge this the more because young men often are more exposed to the temptation to get their work done in the very cheapest way than they will be in after life.

It appears to me to be as much a mistake for a practitioner of architecture to isolate himself as I earlier pointed out it is for a student. If there be no suitable associates within reach it cannot be helped; but in nine cases out of ten there are brother professional men available. Just as you, gentlemen, as students, can learn a great deal from one another, and will lose much of the stimulus and encouragement which make work go well if you do not in some way work in company, so in after life also you will derive great benefit and great pleasure from the society of those who are working at the same profession as yourselves, pursuing the same aims, encountering the same difficulties, delighting in the same studies; and you will be able to render assistance to your professional friends as well as to receive it from them. There are many circumstances under which two architects have to meet as representatives of two clients differently affected by some building operation. You can hardly imagine till you have had experience of it how much better all this class of business is got through if the two professional men know one another; or if even they only know each other as members of the Institute or of the Architectural Association, or in some such relation, than if they meet as absolute strangers. There are also many circumstances in which it is of inestimable importance to an architect to be favourably known to the members of his profession, and I strongly urge you all to begin in this class-room and the Association and Royal Academy schools to work together, and in after-life to belong to the Institute, and not only to belong to these societies, but give some attention and time to their work. An architectural hermit is a mistake.

It is not necessary, I hope, for me to offer proofs that most of the mistakes named deserve the name. I think your own good sense will have recognised, as we went through them, that they merit, each of them, a place in the list of things to be avoided. Some of these mistakes I have myself made, and have found to my own cost that they are what I have described them to be. Others I have happily escaped, but I have seen them made, and know that their consequences are not good.

To steer clear of every error is impossible, but what I wish to say is that good sense, right feeling, and thoughtful attention to your work will go far to preserve you from any very serious slips. Years ago a pupil of mine acted as clerk of works on a job of mine where there was a great deal of masonry, and something which he told me about that masonry seems to convey a lesson. He noticed that some of the masons, as soon as they got a block of stone out of which to cut a feature of the building, set to with mallet and chisel, and in ten minutes were hard at it. Others would spend an hour or two, or possibly a whole morning, studying the block of stone on every side, considering exactly how best it could be utilised, and, in short, laying out their work before they put their hands to it. The men who made mistakes in their work were masons of the first group, not of the second. Perhaps this observation may suggest to us a method by which we may avoid mistakes in our work.

Mildmay Tomb.—Owing to a misapprehension (the original signed drawing having been returned to the author), this illustration last week was not credited to its real author, who is Mr. E. A. Bartlett, of Chelmsford, not Mr. Downing. We much regret (as does Mr. Downing) that Mr. Bartlett should have been for the space of a week deprived of the credit of his own work.

Removal.—We are asked to mention that Messrs. F. L. May & Co.'s Newspaper Advertisement Offices have been removed from 159, Piccadilly, to 162, Piccadilly (corner of St. James's-street.)

Illustrations.

THE NEW CHURCH OF THE HOLY TRINITY, UPPER CHELSEA.

THE new church of the Holy Trinity, which we illustrate this week, is to be built at the sole cost of Earl Cadogan, who also gives the site. The special features of the structure are the unusual width of the nave, which is 40 ft. wide, the large windows at the east and west ends, and the wood vaulting. The plan shows a nave and chancel 150 ft. long, carried under one span of roof from end to end, north and south aisles, with a morning chapel on the north side. There are vestries for clergy and choir at the east end of the north aisle, and provision is made for an ambulatory round the eastern part of the church.

The church is of six bays of arches on either side, standing on octagonal piers. The inner sides of the octagons are carried through into the wall-arch of the vaulting, while lower arches rise out of the other sides of the piers. Immediately above these arches is a broad frieze of wall surface, which is meant to receive painted or mosaic decoration. The spandrels of the nave arcades show figures of the prophets carved out of brick. The walls generally are built of brick, with bands of stone and stone dressings. The organ will be on the south side of the choir, and small galleries are provided in the sanctuary to accommodate a band. On the north side of the chancel is a chapel to be used for weekday services, divided into three bays by arches running across the chapel.

The west façade of the church shows an open porch to the north and south aisles and to the nave, which are separated from each other by octagonal turrets, surmounted with open traceried spaces for bells. The porches and the upper part of the walls of the aisles and the west end of the nave are crowned with open traceried battlements with carved angels, and the main entrances are flanked with life-sized figures of apostles carved in stone.

Both the drawings were exhibited in the Royal Academy, and we commented, in our notice of the Royal Academy architectural drawings, on the striking and original characteristics of the design, both externally and internally. The architect is Mr. J. D. Sedding.

OAK ROOM, NEW RIVER COMPANY'S PREMISES.

THIS room, of which we give a view in the present number, is the room in the New River Company's offices which is used for the meetings of the proprietors. The house in which it is situated was built in 1613, and repaired and re-fronted in 1782. The carving in the room is attributed to Grinling Gibbons.

The illustration is reproduced from a water-colour drawing by Mr. John Crowther, which was in the Architectural Room at the last Royal Academy Exhibition.

AN HOUR IN A VILLAGE CHURCH.

ON the edge of the once far-spreading forest of Rockingham, and just where the flat table-land, which hereabouts it occupies, begins to descend abruptly to the broad valley through which the Welland finds its devious and divided way, stands a village full of old houses, all substantially built of the excellent stone of the district, and witnessing to a period of great prosperity throughout the seventeenth century. Now, however, not a few are rent with ominous cracks; here and there the bare roof-timbers of an extensive barn protrude through the thatch, or outline themseves in melancholy fashion against the sky, and give an air of neglect and decay to the place curiously at variance with the neat and comfortable look of the majority of the houses.

This mixture of prosperity and adversity is equally observable in the church. It is unrestored, and its history lies written in a fragmentary way on every side.

It cannot be denied that through some fatality or other, indifferent and even unskilful workmen have always been employed on the fabric since its foundation over seven hundred years ago, unless we except those who reared the beautiful tower in the fifteenth century. Look, for instance, at the round Norman arches of the nave and the massive pillars on which they rest. The arches themselves may pass muster, but the pillars are all awry and the capitals must have been the work of a prentice hand sent down to learn his business in this wild forest settlement. A century after this youth had removed himself to another sphere of labour, the church was considerably enlarged. There were aisles before, but they were remodelled. The church was lengthened eastwards, and transepts were added; but still unskilful masons were employed. Across each aisle from their transept wall to the new length of wall which they added to the nave, they threw an arch,—no, not an arch, but half an arch,—with its crown resting on the nave wall, for their setting-out was such that no pillar was in a position to receive it, and therefore they simply leant it against the wall. The consequence has been that the weight of these half arches, or flying arches, has thrust against the nave walls to their great detriment, and to the peril of the whole structure.

Such was the constructive skill of the thirteenth-century masons; as designers, they were little better. True it is that each individual feature of their work is pleasant enough. The piscina, or whatever it may have been, in the south transept, is nice enough, and the mouldings are bold and simple; so are those of the mysterious recesses in the north-west corner of the same transept. Their swelling outlines, their deep under-cutting, and the vigorous dog-tooth with which they are emphasized, are all very fascinating. But the arches of the two recesses meet in a fashion most clumsy: they have no consideration for the sill of the adjacent contemporary window; strings jump about without reason, or thrust themselves rudely against more delicate work; and everything points to a state of art where a clever workman could turn out excellent specimens of things to which he was accustomed, but had no faculty for combining the separate features in a harmonious whole.

Another century passed away, and again workmen were employed, and once again the severe test of time has been unfavourable to them. On this occasion their work was chiefly confined to making the interior more cheerful by inserting larger windows in various places, and in adding a clearstory to the nave. In the south aisle are mutilated remains of a window of two lights; in the gable of the south transept are the jambs and mullions of a four-light window, of which the mouldings resemble those in the excellent east window of the chancel. The fatality which attended all the work hitherto has not spared this east window, for the masonry at each side has given way, and the head, filled with beautiful reticulated tracery, has sunk, and, besides breaking the back of its enclosing arch, has thrust out the jambs, so that the window at the springing line of the arch is many inches wider than it is at the sill-level; thus giving an aspect of instability and decay to one of the most noticeable features of the church.

Yet another hundred years went by, and then, about the middle of the fifteenth century, workmen once more came to the place, this time to build the tower. Their work has stood well, and contrasts favourably, both in design and execution, with any that preceded it. Indeed, to all but the curious and careful observer, the tower is the only noteworthy feature of the building. The mixture of arches of varying shapes and heights, the bowing walls, the distorted windows, and the general air of slovenly workmanship which marks the interior, rouse but little interest until one comes to try and read the history of the many changes that have occurred. But the tower is a good piece of work, of that quiet kind which grows upon one by closer acquaintance. It has no pretensions to elaboration or expensive work. It consists of plain brown walling, divided at judicious intervals by grey strings. The buttresses which emphasise its corners are weathered back in grey stone, at just the right distances, till they end in some delicate panelling beneath the four pinnacles at the top. A small, single-light window shows itself in two faces in one of the lower stages. Above them all is plain ashlar work till the topmost stage, which is occupied on each side with the belfry windows. There is nothing intricate, no *tour de force*, nothing difficult to draw; but, as an instance of the value of plain masses of wall, this tower well deserves attention, as it rises from among its trees straight and slender, shining in the sunlight almost like an Italian campanile.

So far each century since the foundation of the church had seen some enlargement or

alteration. We now come to a gap of nearly two hundred years; and we have passed out of the Gothic era altogether; and the next evidence of the presence of workmen shows them to have lived in the days of James I., when little skill in church architecture is to be expected, and no sympathy with the departed methods of work in that branch of business. Accordingly, we find the moulded jambs and mullions of a fourteenth-century window, which had probably fallen into disrepair, finished at the top, not with tracery, but with a row of segmental heads, of which the mouldings only partly agree with the original: the unskilful workman is again at work. Several other windows he put his hand to, and where he worked he spoiled; for there was no one to care what he did, nor to compel him to exercise his brain in designing. Hitherto no monument of any kind had been set up in the church; neither cross-legged knight, nor canopied recess, nor panelled altar tomb resplendent with heraldry, nor the kneeling figures who pray beneath the bejewelled arches of King James's time. There had been no resident lord ready to wipe out his sins with fine architecture, nor any family of sufficient wealth to cause a single tomb to be raised to their memory. And there was no one to see that the workman of King James's time did his business well. No doubt his woodwork was better than his stonework, for from various fragments which now line obscure seats, we gather that early in the seventeenth century a large amount of pewing must have been done; more, probably, than would have sufficed for the family pew of the squire, had there been one, which is doubtful, notwithstanding that the field adjoining the church is called the Hall-close, and has a dry fish-stew at the bottom of it. At any rate, no squire of this time has left his monument.

But presently a change took place in this respect. Some two miles off a fine mansion had been erected. The owners, now created lords, made this church their place of worship and introduced a number of changes. They took the chancel for their own use. They ceiled it to keep it warm, they lined it all round with panelling ten feet high, filled up the lofty chancel arch with some kind of screen, now removed, leaving scars in the stonework; they set up the handsome communion-rail, they gave an excellent pulpit; and to the chancel wall they attached a few tablets, setting forth in the Latin tongue the virtues of numerous children cut off in the flower of their ages, as well as the perilous adventures of one noble member of their family who held high command abroad. Moreover, they blocked up the priest's door, and inserted two plain square-headed windows, in poor imitation of the least interesting work at their own noble mansion. Perhaps it was they who gave the fine peal of five bells, cast in the year 1761 by Eayre, of Kettering, and adorned with sentences more pious, probably, than the donors. But at length the noble family, too, went. They left their princely seat to a melancholy decay, and the church went on with the same repetition of inefficient workmanship. It was pewed throughout with seats conducive neither to a careful consideration of the service, nor a serene resignation to slumber. Some of the old woodwork was patched together to enclose the reading desk. The doors in the north and south aisles were filled in with mockeries of ancient windows, and a new porch and south door were provided, to the increased comfort of the congregation, and on the whole, perhaps, not much to the detriment of the architecture. And so we come down to the present day, when there exists a desire to do something towards improving the building, if only to prevent disaster arising from the shortcomings of past centuries. And shortcomings there have been, in spite of the prevalent opinion that all Gothic work is good—here it certainly is not, either in design or execution.

We have said that the north door has been filled in. It can have served no purpose for many years, for it could lead only to the churchyard, which is bounded on this side by a precipitous and inaccessible bank. Whether it was so 600 years ago when the door was made we cannot tell. Perhaps then the ground sloped more gradually down to the river, so that the door was useful to those approaching from that side; and possibly among them might have been some hunted wretch making hither for protection, for the church was a forest sanctuary. How his heart must have beaten and his legs ached as he sped up the long hill to the friendly door!

Before leaving, we cannot but notice the floor raised many inches above its first level, swallowing the bases of the columns, and paved in part with gravestones. Most of them record the deaths of a family named Tee Boon, which, though now in a humble walk of life, may boast descent, the antiquaries tell us, from the martial race of De Bohun, of which their name is a corruption, And one stone to a man of another name states how he was married in this chancel, and lies here in hope of life beyond the threshold of death. Did he write his own epitaph, or did his widow? Whichever it was, it reveals a happy life, that he who lies buried in the transept should also record that he was married in the chancel.

THE CHURCH CONGRESS IN MANCHESTER:

ECCLESIASTICAL ART EXHIBITION.

The promoters of this exhibition have not been fortunate in the choice of rooms. The collection is placed in a set of apartments in the Museum building in Peter-street, and a more inconvenient and badly-lighted set of rooms it would be difficult to find in any public building in Manchester. It is a matter of difficulty to move about, and nothing can be seen to advantage. The collection of objects is divided into two classes; we have the usual display by firms who manufacture church furniture and church decoration, and there is a loan collection of interesting objects, both modern and antique. In the former class, the metal-workers, decorators, embroiderers, and glass painters and stainers, make the most interesting show; there are also the usual exhibits of church books and stationery, and, as a matter of course, many articles have stolen their way into the exhibition which have no connexion whatever with ecclesiastical art, such, for instance, as fancy drinks, plated dishes, knives and forks, and other articles peculiar to the domestic uses of mankind.

With few exceptions, there is nothing new, and nothing specially interesting, in the exhibition. In Benham & Froud's exhibit there are one or two new departures in brass lecterns, and in one case the substitution of an angel in dead brasswork in place of the usual eagle is a happy thought, and well carried out; the figure is well modelled and well expressed, and the book-board is formed of open tracery cleverly executed. The pastoral staff by Messrs. Thomason, of Birmingham, lately presented to the Bishop of Manchester, is really a choice piece of work; the staff and crook are of ivory, very cleverly enhanced with metal-work and precious stones, and the whole thing is a creditable production. The processional cross, lent by the Rev. J. Reeve, of St. Alban's, Manchester, is a large and important contribution to the metal-workers' art. The figure of the crucified Christ is cut from a block of silver set upon rock crystal. The cross is floriated, and the whole work richly jewelled. Messrs. Hart, Son, & Peard, Messrs. Jones & Willis, and other metal-working firms are fairly well represented.

There is not a very good display of window-glass, but many of the small drawings and some few of the cartoons are well executed. Messrs. Heaton, Butler, & Bayne, Messrs. Hemming & Co., and Mr. Edward Frampton are well represented. The small coloured drawings by the latter gentleman are excellent; indeed, they are the only drawings which seem to catch at the richness of colour and flat treatment of old window-glass. In church-wall decoration by simple colour treatment there is not much to commend in the exhibition, if we except the clever flat treatment by Mr. R. Bennett, of Manchester. The forms and lines are good and thoroughly appropriate in character; there is also in this work a quietness and sobriety of colour to be commended.

One of the best things in the exhibition in embroidery is an altar-frontal, by the Decorative Needlework Society. It consists of a conventional treatment of the vine, executed in gold oriental thread on a crimson ground: the roots of the tree form the base of the composition in the centre; from these springs the stem, from which the branches flow over the crimson ground in a thoroughly artistic manner. If this work is a creation, and not an adaptation from an old example, it is a credit to nineteenth century design.

One of the most interesting of modern decorative inventions is the "Cloisonné Mosaic," by Mr. Clement Heaton. Here are examples which clearly illustrate this beautiful method of work, which is so happily founded on the Cloisonné work of Oriental nations. Not only is the material cleverly manipulated, but the specimens exhibited have been very well designed by Mr. Frederick Shields. We anticipate a success for this material; it is appropriate and durable if used in smoky cities, it can be cleaned, and the cost is not prohibitive.

In ecclesiastical sculpture and stone carving, Messrs. Earp, Son, & Hobbs, make a creditable display both by actual examples and by photographic representations of executed work.

Church furniture is exhibited by Messrs. West & Collins, of Hambledon, W. & S. May & Co., Pearson & Brown, of Salford, and Hammer & Co., of London.

In the Loan Collection, Mr. George Esdaile, of Manchester, has sent a large collection of rubbings of ancient brasses, ranging from the fourteenth to the seventeenth centuries, but these are so badly hung that it is impossible to see them, and the points of interest so dear to the antiquary are lost. The brass rubbings lent by Mr. Henry Franks, of Willesden, also suffer from the insufficiency of accommodation for such objects. Mr. J. Kendrick Pyne, the cathedral organist, exhibits some interesting old MSS. and music, and Mr. Cornish has sent some antiphonals of old date and stout binding, enriched with metal work. Our space will not permit us to do justice to this portion of the Exhibition, but we must express regret at such a poor display of drawings by church architects. What few there are seem to be scattered about on staircases and other inconvenient places, whereas a separate room might well have been devoted to a collection of architects' drawings which would have appropriately illustrated the progress of church architecture during the past year.

MAIN DRAINAGE AND SEWAGE IRRIGATION: MORE PARTICULARLY THE BERLIN SYSTEM.

The current number of that leading sanitary organ in Germany—the *Gesundheit*—publishes, we note, the correspondence* which has recently taken place between Mr. Charles Hancock, F.S.S., and Herr Stadtrath Marggraff, of the Berlin Municipality, and, with it, a memorandum criticising the same, from the pen of the renowned German scientist, Dr. Alexander Müller. The latter paper has been translated by Mr. Hancock, and is forwarded to us for publication. As the subject is one of great importance to us in this country, we print the paper:—

"On the subject itself" (says Dr. Müller) "I have not much to say. It is an old story, but of course it becomes new again for those who have but just gone through the experience. I myself had fancied for a time that the most reliable source of information as to the local conditions of a community would be found in the local governing bodies—for they must be in the best position to give an opinion; and on engineering questions they ought to have no other interest than to exercise an impartial judgment in respect of the works carried out by their own engineers. At the same time, it must be admitted that there are many things likely to warp the judgment and overcloud the vision, thus tempting interested parties to misrepresent matters, or, at least, to obscure the true position of affairs. I may mention as a motive, that feeling of rivalry which would prompt various local administrations in different cities to glory in having been the first in the field—the first to discover the right solution of an arduous problem. The more difficult a problem is, the more unreliable as a rule will official reports be; and the problem of a proper provision for such a system of sanitation in large cities as shall be generally recognised to be adequate, is, indeed, most difficult, and one, too, as regards the solution of which no instruction can be gained in board-rooms and administrative departments. I need hardly say that no problem of the sort can be expected to be solved exactly in the same way in the case of two different cities, and consequently when, many years ago, I was lecturing at Professor Nobbe's agricultural experimental stations on the great inquiry concerning the main drainage of Paris, I took occasion to impress upon all my hearers who wished to study the Berlin sewage disposal system, not to allow themselves

* A translation of *one* of these letters appeared in the *Builder* (of August 11th last).

to be piloted about by blind enthusiasts only, but to go round with cool-headed and collected sceptics, and that not once only, but on repeated occasions and at varying seasons of the year. Indeed, many a time and at many a spot the Berlin farms look exceedingly beautiful, while at other times and in other portions of the area covered the view is desolate and forbidding, which explains why it is that we have such conflicting reports from different visitors.

It is not so many years ago since the Berlin sewage farms were a public nuisance—so much so that the Government found it necessary to order a survey, and to appoint an official supervisor for the works. From that date things took a decided turn for the better, as I have repeatedly admitted in public.

The employés on the farms originally had to carry out in a slavish sort of way orders received from an architect and an apothecary (!); and, in addition to that, they had to reckon with numerous wishes which were continually being expressed on the part of influential Municipal Councillors. After a time they obtained a freer hand, and for the last two years the special responsibility for administering the farms has been placed in the hands of an eminent and independent man, a farmer by calling and profession, who is not only capable of forming an opinion on difficulties as they arise, but is not obliged, so far as the municipality is concerned, to make any secret of things, although, of course, in his intercourse with strangers he is bound to exercise some little reserve.

As regards my attitude with reference to the question of town sanitation generally, and to the main drainage combined with sewage irrigation scheme at Berlin in particular, I may be permitted to be very brief, because for the last thirty years I have from time to time published such observations as have occurred to me according to the circumstances of the day.

For me, the main question has always been the ultimate disposal of waste products (see my work, entitled 'Die Berieselung der Wohnungen,' Dresden, 1869, Schönfeld), and from this point of view I can only treat the prophecies and hopes of the then leader of the 'Germain Main Drainage Fanatics' (as Von Pettenkofer called them)—namely, to the effect that all enlightened municipalities would very soon be laying down a system of sewers, if only for the purpose of coining gold out of night-soil by means of irrigation,—I can only, I say, treat these sanguine anticipations as mere childish infatuation, at least, so far as German conditions go. At the same time, of course, it never occurred to me to doubt that town sewage in certain circumstances would be a most welcome boon to agriculturists.

Now, as regards a real utilisation of the manurial elements contained in sewage, there was at that time not a single case known, and I therefore eagerly seized the opportunity which presented itself, very soon after, to undertake some experiments in this direction. In the autumn of 1869 I was charged by the authorities of the city of Berlin to test a number of water samples taken from local wells and watercourses, and ascertain the relative degrees of pollution; and incidentally, in the course of my investigation, to analyse, according to various methods, the products of the purification of refuse from chemical establishments.

A year later on, the scope of the instructions given to me was enlarged so as to embrace,—so far as the agriculturally chemical part of the work is concerned,—the execution by me of a series of experiments (which had been meanwhile resolved upon) with sewage irrigation. However imperfect the arrangements for these experiments, and however small the amount of remuneration placed at my disposal for the purpose, I yet very soon discovered that sewage farming and river irrigation were two very different things, although the former presented highly interesting problems, the solution of which, from a scientific and agricultural point of view, appeared to be most important. When I first started work at Berlin, I was told by the authorities that it did not matter very much about the 'preliminary investigation of the question of sanitation and drainage'—for a sewerage system would be carried out *in any case*. That being so, my position became rather difficult, if I was to be expected to specify the many difficulties cropping up in connexion with sewage-utilisation. They (the authorities) would not hear of any difficulties in the matter, and my proposition, therefore, that Professor Dr. Hellriegel, the well-known agricultural chemist (then at Dahmè), should be called in to refute or confirm the results of my observations, was declined with profuse assurances of the most perfect confidence in me, and a promise that it would not be long before the materials for a thorough investigation of the question of sewage irrigation should be forthcoming.

Meanwhile, certain tactics were being pursued quite unintelligible to me, and about which, as lying outside my province, I did not trouble any further. The object of these tactics was to arrive at a resolution to be passed by the Municipal Council in favour of a main drainage system according to Hobrecht's method, while at the same time the sanitation,—or, to speak more correctly, the filth and malarious condition,—of the metropolis were allowed to reach such a pitch that the very worst of sewerage systems must needs be regarded as a welcome deliverance. In this sense, and on the assumption that only an experimental sectional sewerage system, or, as we call it in Berlin, 'Radial system,' was going to be admitted, I certainly did believe, in March, 1873, that the laying down of sewers in one district of the town, with compulsory sewage irrigation as part of the scheme, would be desirable, just as before then I had made efforts to secure the carrying out of a large experiment with Liernur's process, and with other systems of deodorisation besides.

Having concluded, then, to adopt the main drainage system, the authorities, 'yielding to pressure from a public opinion bent upon securing the blessings of a sewerage scheme,' lost no time in providing for the preparation and execution of successive 'radial' main drainage works, while ordering the discontinuance of any further scientific research on the question of sewage irrigation. Herr Marggraff, a member of the Corporation, who had previously taken up a fairly impartial position as regards the drainage scheme, after being elected a City Councillor and being appointed Official Referee in the matter of the drainage works, at once commenced work in a most energetic way, promoting through thick and thin every kind of sewage irrigation adventure.

Now, it fell to my lot to watch at close quarters and as a disinterested observer, the frequently wonderful phases of the history of the Berlin Main Drainage and Sewage Irrigation scheme; and my investigations, carried out in 1870—1873, were published for the most part in official reports on the question of the 'Sanitation and Drainage of Berlin' ('Reinigung und Entwässerung Berlins'), and, to a more limited extent, at Nobbe's experimental stations.

Other essays of mine on 'Sewage Irrigation Farming,' at Berlin and in other Cities, will be found chiefly in Wilde's *Central Journal of Agriculture* (Wilde's *Landwirthschaftlich Central Blatt*), in Varrentrapp and Eulenberg's 'Quarterly Review of Public Hygiene' (Varrentrapp and Eulenberg's 'Vierteljahrschriften für öffentliche Gesundheitspflege'), &c. I supplied also a comprehensive 'Notice' of the sanitary state of Berlin, by order of the German Council of Agriculture, as part of their researches, published under the title of 'Die Verwerthung der Städtischen Fäcalien' ('Utilisation of Town Sewage'). Three other papers of mine of more recent date on the 'Befouling of the River Panke and of the Teltower Lake with Irrigation Drainage Waters,' and on the 'Significance of the Underground Water-level in its effects on Sewage Farming' (the two first-named being prepared by me by order of a Court of Justice), have been made public in the *Gesundheit* and other sanitary organs.

Any one desirous of trying the question, whether my observations on sewage farming and my proposals for the perfecting thereof are correct from a scientific point of view, will of necessity,—whether he approach the subject in a friendly or hostile spirit,—be bound to make himself acquainted with my writings. The deputation of French senators, to which Mr. Hancock alludes, were familiar with my works before their recent visit to Berlin, and they instructed their engineering assessor, who preceded their arrival, to interview me, after which the deputation itself honoured me with two personal calls. In fact, Mr. Hancock himself seems, from the correspondence with Herr Marggraff, to be fully cognisant of what I have written on this subject; but I do not know to which particular tract of mine he is referring, and consequently am at a loss to know whether this is one of those which has accidentally escaped the notice of Herr Marggraff.

All I can say is, I have had no cause to submit my treatises and professional reports to Herr Marggraff. This was done, on the one hand, by the German Council of Agriculture, which had had materials supplied to them by the Town Council for the purposes of their official inquiry, in return for which they (the Council of Agriculture) afterwards sent in a copy of those treatises and reports of mine; on the other hand, it was done also through the Courts of Justice at Berlin in the course of the pending trials. Personally, it is a matter of perfect indifference to me whether Herr Marggraff is in the habit of studying my writings or not, and I can quite understand that this much-occupied Town Councillor prefers to read the laudatory criticisms which tell him how admirably he has succeeded with his treatment of sewage by irrigation. In fact, I am almost tempted to envy Herr Marggraff that artless *naïveté* with which he manages to forget any disagreeable facts, and fences with accidental slips of memory or lack of knowledge.

Permit me now to refer to Herr Marggraff's letter to Mr. Hancock of the 10th of July, which deals more or less exclusively with the reputation the administration of the sewage farms has acquired. Now, the establishment of the main drainage works did not last ten years, but only three years; and for six months out of these three years there was no irrigation whatever, or (if any) only in homœopathic doses. The experience gained during that experimental stage so completely eluded the memory of Herr Marggraff that he actually afterwards organised the raising of wheat, rye, and other similar corn crops on a large scale, as well as of flax, rye-grass, beet, and other roots for cattle; and further did his best to get hold of English capital for the erection of a large sugar factory.

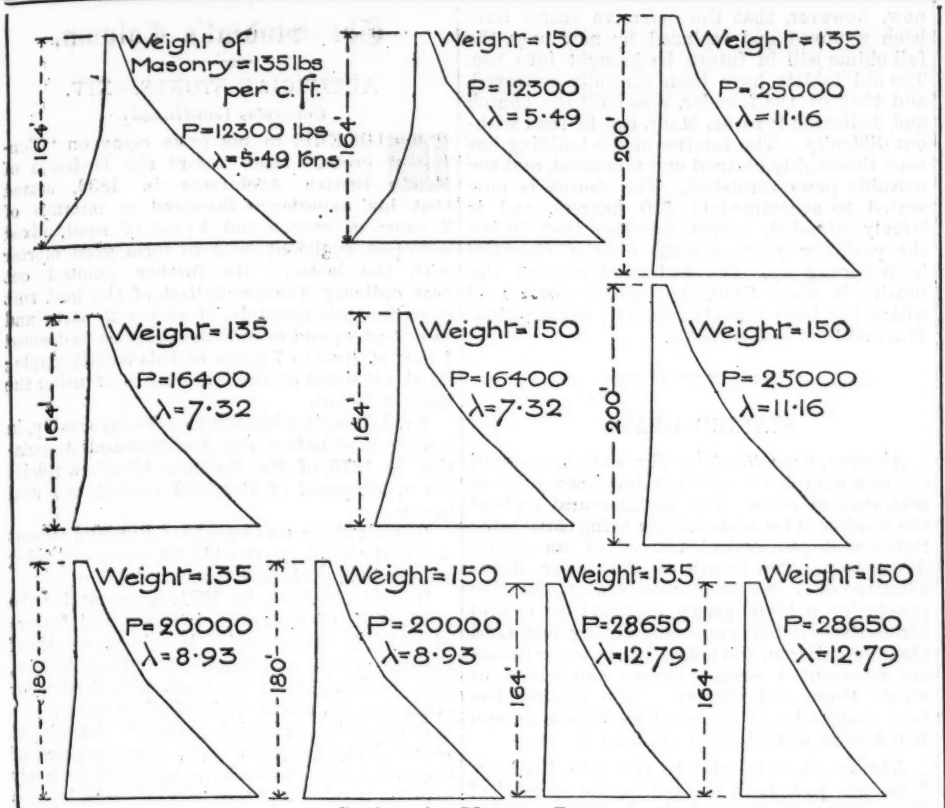
The straw of the cereals now raised with a very limited amount of sewage irrigation sells so badly in Berlin that efforts have been made to dispose of it in compressed bundles to a provincial pasteboard manufacturer.

Of sewage-farming, then, carried on upon some sort of a system, we in Berlin can only speak from an experience of the last five years or so. Fifteen years ago not a single street in Berlin was provided with sewers, much less were pumping stations even in existence.

The profits at the end of 1869 or 1870 were officially estimated at about 5 per cent., as to which the Municipality were informed by Herr Heuschmid (of Bayreuth), agricultural engineer; Councillor Von Langsdorff (of Dresden), and G. Gerson (of Berlin), landed proprietor, that the credit balances put before them were merely gross returns. Whether the nett profits on sewage farming really are now beginning to attain to 2 per cent. it is difficult to ascertain. It seems to me more consistent and more to the point to calculate what is the cost (direct and indirect) per head and year of the drainage works combined with sewage irrigation. This would, at present, be very near 5 marks as opposed to the 5 to 10 marks nett profit about which the 'Main Drainage, &c., Fanatics' used to rave twenty years ago, as the anticipated yield from the utilisation of sewage.

In the further letter of the 24th of July, Herr Marggraff prides himself upon the fact that the French Senatorial deputation were 'much impressed with the clear, undisturbed appearance of the effluent obtained.' Now, twenty years ago the eminent chemist, Dr. Frankland, warned the inhabitants of London against the apparently clear water taken from the wells in that city; and if one sets no higher aim before one than this, then one may be permitted to admire, without reserve, perhaps, all that Herr Marggraff claims to have done for the works under his control.

Nor is there any occasion to argue about the amenities of the drainage system. As to its admissibility, and that of many other alleged improvements in town management, our posterity will judge differently from the present generation. Perhaps we may live to see Virchow himself revert to his sceptical attitude of 1870,—for did he not, last autumn, declare to the Berlin Municipality that no other metropolis presents a more striking example of so terrible a visitation amongst children in the form of diphtheria, scarlatina, and measles, than Berlin? Is that not a confirmation of the observations communicated by Haywood on the subject of Edinburgh, the fashionable and best-drained parts of which are constantly ravaged by the maladies referred to, including enteric fever? whereas, in the poor and dirty part of the town—Auld Reekie—these diseases are but rare visitants.



Sections for Masonry Dams.

The last word has not yet been heard on the sanitation of cities, any more than it has been on the question of asphalte pavements for streets and courtyards. It cannot be denied that these prevent the self-cleansing process of the ground, permeated as it is in large towns by impurities, and this, not merely in spite of the sewerage system, but largely in consequence of it, thus collecting the germs of disease as it were in a Pandora's box on the one hand, and on the other making it impossible to plant the streets and roadways with trees.

In conclusion, I feel myself particularly honoured by *not* being reckoned among those who think they have already accomplished the best possible knowledge; and even as I am convinced that by my outspoken critical remarks I have here and there been the cause of forcing on improvements, so I shall also in future have much satisfaction in vigorously working for the agricultural utilisation of sewage."

FORMULÆ FOR MASONRY DAMS.

SIR,—In the review of Mr. Wegmann's work on masonry dams, published in your issue of July 28, 1888, the following sentence occurs:—"To find formulæ which exactly satisfy the conditions of stability at every point of the dam, and thus give us the most economical profile, is, with our present knowledge, beyond our power."

It may perhaps interest your readers to know that I have devised simple formulæ which give, with almost mathematical accuracy, the same results as those obtained by the extremely laborious method of M. Bouvier, whose mode of calculating the forms of masonry dams has been accepted generally in all recent constructions of such dams on the Continent.

My formulæ are given on page 287 of Molesworth's "Pocket-book of Engineering Formulæ," 22nd edition. In the course of the investigations I instituted for the preparation of the formulæ, I discovered the important fact that the density of the masonry (within certain limits, which are practically fixed by the character of the masonry between 135 lb. and 150 lb. per cubic foot) does not appreciably affect the form of the profile.

This fact has enabled me, by eliminating the variable factor of density, to reduce the formulæ to expressions of a very simple character.

I send by book-post a sheet of ten profiles, embracing all possible conditions that are likely to occur in practice, varying from a limit of pressure of $5\frac{1}{2}$ tons to that of $12\frac{3}{4}$ tons per square foot, with densities varying from 135 lb. to 150 lb. per cubic foot. These profiles are worked out by M. Bouvier's method, and contrasted with profiles under the same conditions as calculated by my formulæ, and in every case the divergence of the two profiles is practically inappreciable.

I also sent a copy of M. Bouvier's investigations, translated from the "Annales des Ponts et Chaussées," which serves to show the extremely laborious character of M. Bouvier's calculations, which involve three pages and a half of printed foolscap, and the employment of the integral calculus, forming a strong contrast to my simple formulæ of $y = \sqrt{\frac{\cdot 05\, x^3}{\lambda + (\cdot 03\, x)}}$ for the down-stream face, and $z = \left(\frac{\cdot 09\, x}{\lambda}\right)^4$ for the up-stream face.

GUILFORD MOLESWORTH.

Simla, India,

August 22nd, 1888.

*** We cannot give the comparative sections obtained by Bouvier's and Sir G. Molesworth's formulæ, as the differences between them are so slight in places that a large-scale diagram would be required to exhibit them; but we have thought it would add to the interest of Sir G. Molesworth's letter to give, on a small scale, his own sections as derived from his formulæ. P is limit of pressure on masonry in lbs. per square foot; λ is limit in tons per square foot.

ANCIENT CROSS AT GLOUCESTER.

SIR,—Mr. J. Moyr Smith's letter [p. 234, *ante*] has not convinced me that the characteristic interlaced ornament found on the old Irish crosses originated in Scotland. He should, I think, first prove its development from earlier remains, as we are enabled in Ireland to trace it from the Runic knots on pre-Christian Ogham stones, tumuli, &c., to its fullest development in the beautiful crosses at Monasterboice and Cormac's Chapel at Cashel.

If those crosses are of Saxon origin, how is it that none of the Saxon churches in England show a trace of interlaced ornament, whilst the Irish churches from the eighth century abound in such ornaments? How is it that we can point to the shrines, metal crosses, and manuscripts, such as the Book of Kells, Annals of Clonmacnoise, and other manuscripts, covered with interlaced ornament exactly similar?

If Ireland was Christianised and civilised from England and Scotland, how is it that the Irish annals are full of the lives of Irish missionaries to England, Scotland, and the Continent?

I suppose that we shall next be told that St. Gall, the apostle of Switzerland, was not an Irish missionary, and that he was a Scotchman, or, perhaps, Saxon.

Your correspondent cites Strabo and Nennius with great gusto, and evidently believes that the ancient Irish were endowed with that "double dose of original sin" of which we have heard so much lately.

The explanation of the origin of this interlaced ornament is that from the earliest ages Ireland had an intercourse with the East; that the ornament is of Byzantine origin; and that it was developed in Ireland. There is no authority except Mr. Smith's assertion that it came from Scandinavia.

Let Mr. Smith consult the Irish annals of the four masters and other Irish authorities, and he will find that he is utterly mistaken in thinking that Scotia was the ancient name of Scotland, the natives of which were the Picts. Scotland in time acquired the name in the same way as the South of Italy was once known as Magna Grecia.

JOHN L. ROBINSON.

INSPECTION OF SEWERS.

SIR,—An interesting article appears in your issue of Sept. 29 last from Mr. James G. Killey, A.-M.Inst.C.E., on the subject of the inspection of pipe-sewers. In the concluding paragraph he writes:—"Brick and concrete sewers are usually thoroughly inspected inside for line and level, and for quality of work. With pipe-sewers it is different," &c.

Mr. Killey explains an ingenious method of attempting to secure by man-hole inspection and lights that the drains are laid straight and free from internal obstructions. Where the drain is required to be perfectly straight the inspection would undoubtedly lead to the detection of any marked irregularity or obstruction, but, of course, it is inapplicable to other drains than those laid in an absolutely straight line, and even there it is not capable of detecting such cause of obstruction as rough or uneven joints. If it could detect such joints it offers no means whatever of remedying them short of lifting and re-laying the whole, with the tolerable certainty that the new drain will still be imperfect. Add to this—first, that only a small proportion of drains can be laid in long, absolutely straight lines; and, second, that Mr. Killey's method is inapplicable to the case of the smaller sizes of drain-pipes—4, 6, and 9 in. in diameter—that are most largely used. I do not wish to detract from the value of the mode of inspection advocated, but only point out that it can be applied only in few cases; and in those few cases it does not meet all the difficulties. T. L. WATSON.

108, *West Regent-street, Glasgow*, Oct. 1, 1888.

CHURCH CORNER-STONES.

SIR,—What is the traditional custom among masons with regard to the position of a church corner-stone?

Is there, or was there, any rule recognised by builders as to the spot which they were to regard as the commencement of a building?

Can your readers give me any instances earlier than the seventeenth century when corner-stones are visible and known to exist, and what is their position?

I was under the impression that they were always N.E., but I have been hearing lately of S.W. ones in old church-work, where they laid above or below the level of the surrounding yard.

ALFRED E. P. RAYMUND DOWLING.

Sledmere, Yorks.

UNEDUCATED PLUMBING.

SIR,—I have recently met with a case, and which is not an isolated instance, that will illustrate a deplorable defect in our present system of teaching,—or, rather, not teaching,—the proper principles of plumbing w.c's. The case referred to is of the "wash-out" description, but it fails to wash out,—in fact, is a downright fraud, simply because its unsuitable shape, and hence the useless dispersion of its motive, would require at least three or four times the quantity of water that is instantly supplied by the cistern attached to it; and second, because the supply-pipe to the cistern from the water-main is so small that it requires ten to fifteen minutes to re-fill this too-small flushing compartment of the cistern. Can there be any wonder that, in many circumstances, such a slovenly way of doing work leads to many of the intolerable nuisances which inflict tenement houses where such nuisance-traps are permitted? In many of the so-called "wash-outs" the lines are so wildly dispersed and diverted that the force of the motive is lost, instead of its being judiciously confined and concentrated to perform its duty.

A sufficient flushing force in gallons should be plainly marked on the basin, so that an ignorant plumber is not left to attach a flush cistern of insufficient capacity. In many of these so-called "wash-outs," their curves and lines are not formed in accordance with the rules of hydraulics which should control them. F. B.

Oct. 2, 1888.

*** It is not always the fault of the "ignorant plumber." The flushing or "waste-preventer" cisterns permitted by the water companies are often so inadequate in size as to give no sufficient flush in any kind of basin, and to constitute a sanitary danger.

THE COURT THEATRE.

Sir,—In your report in last Saturday's *Builder*, re Court Theatre, you have fallen into an error, which, in justice to ourselves, we would ask you to correct. You say the electric fittings were supplied by Starkie, Gardner, & Co., whereas we supplied electric bells, signals, orchestral rails, handrails, and ventilating shafting. J. & C. Christie.

*** We gave the names as sent to us from the architect's office.

CHURCH-BUILDING NEWS.

Ashted, Birmingham.—St. James's Church, Ashted, Birmingham, was reopened a few days ago, after being closed for the purpose of alteration and repair. The main walls have been underbuilt on a foundation of concrete, and the external stone and cement facings of church and tower have been repaired. The decayed timbers of the roof have been taken out and reinstated, and the old ceiling, which was in a dangerous condition, has been taken down and renewed. The church has been repaved with wooden block floors laid on concrete, whilst the chancel has been paved with encaustic tiles and the steps rearranged. The old square, high-backed pews have been taken away, and modern seats constructed with the old oak. A new glazed screen has been erected at the west end of the church, and the space under the tower formed into a baptistry. The organ has been removed from the centre of the west gallery and reconstructed on the north side of the church. The building has been thoroughly warmed with hot-water apparatus by Mr. H. Hope, of Birmingham, and ventilated by Messrs. Hill & Hey, of Halifax. The new gas-fittings were provided by Messrs. Hart, Son, Peard, & Company. An oak reredos has been made by Messrs. Jones & Willis from the design of the architects. The interior of the church has been decorated by Mr. John Taylor, of Birmingham. The builders' work has been executed by Messrs. Jeffrey & Son, under the superintendence of the architects, Messrs. Osborn & Reading, of Birmingham. The alterations have been carried out at a cost of £2,500.

Birmingham.—The Old Meeting Church, Birmingham, has just been improved by the erection of an oak reredos and side wings. The centre portion is divided into five panels by buttresses, terminating above the structure in crocketed pinnacles. The panels are filled by recessed and moulded arches, with gables above, supported by columns with carved caps, the space between the arches and gables being filled with carved spandrels and tracery. The side wings, which run to the north and south walls of the chancel, form an arcading, with traceried panels, being finished along the top by a carved and moulded capping. The work has been carried out by Messrs. Jones & Willis, of Birmingham and London.——The foundation-stone of a new mission-room or church school was laid a few days since in Dollman-street, Ashted. It is intended that the portion now being erected shall form part of a church that will be completed as funds permit. The architects are Messrs. Osborn & Reading, of Birmingham, and the contractors Messrs. Barnsley & Sons, of Birmingham.

Buckland St. Mary, Somersetshire.—A reredos which has been erected to the late rector of Buckland St. Mary (the Rev. J. E. Lance) has lately been unveiled. It is of white and red alabaster and Devonshire marble. In the centre (the whole length of the altar) is a representation of the dead Saviour, the head supported by the Blessed Virgin. The altar step is one piece of marble, 8 ft. by 2 ft. The reredos was designed and executed by Mr. J. Forsyth, of Finchley, and Messrs. Blackley, of St. Marychurch, Torquay, supplied the marble.

Finchley Parish Church.—This venerable old church has just undergone repair. The roof has been thoroughly overhauled, and a slight addition is being made to the vestry, which is situate on the east side of the chancel. When the church was enlarged in 1871 to meet the requirements of the increasing population of the parish, by adding an additional wing, extensive alterations were then made, and a gallery, occupied chiefly by the squires, was removed, and a few of the very old monumental tablets were shifted from the aisles and placed in the gallery which faces the chancel. A portion of the woodwork in the belfry was found to be in a state of decay, and for a time the peal of bells could not be rung; now, however, that the defective beams have been removed and replaced by new ones, the full chime will in future be brought into use. The old tablets have been carefully preserved, and that of the founder, who built the church and dedicated it to St. Mary, can be read without difficulty. The interior of the building has been thoroughly cleaned and repainted, and the movable pews varnished. The church is now seated to accommodate 550 hearers, and is largely attended, notwithstanding that, during the past few years, several district churches have sprung up. The estimated cost of the repairs is about £850, the greater portion of which has been already raised by subscription. The architect is Mr. Ladds.

STAINED GLASS.

Alveston, near Bristol.—The east window of the new church of Alveston has been filled in with stained glass. The architectural style of the window is Decorated, there being three large lights and geometrical tracery of an ornate description. The length of the lower lights admitted of a design of canopy work, forming panels for a large group designed to extend across the window and representing our Lord blessing children, and below this in lesser panels are represented seated figures symbolical of Faith, Hope, and Charity. The window has been designed and executed by Messrs. Joseph Bell & Sons, of College-green, Bristol.

Bletsoe.—A memorial to the late Lord St. John has just been erected in the chancel of Bletsoe Church, Bedfordshire, in the shape of a three-light window representing "the Angel at the Tomb," with the text, "He is not here, for He is risen." The inscription at the foot is "In memory of St. Andrew, fifteenth Baron St. John, of Bletsoe, born October 5th, 1840, died November 2nd, 1887. Erected by his wife and children." The work has been designed and executed by Messrs. Mayer & Co.

Cwmamman, South Wales.—The restoration of the church here being completed, an east window, from the studio of Mr. Taylor, of Berners-street, has been presented to the church, the gift of the parishioners. The subject is Christ as the Good Shepherd.

Lindfield (Sussex).—One of the chancel windows of Lindfield Church has just been filled with stained-glass illustrating the Acts of Mercy. Messrs. Warrington & Co., of London, designed and executed the work.

Railways in India.—It is stated that the Bengal Government is about to set in hand a survey for what is called the Western Bengal Railway, from Moghul Serai *viâ* Gya and Ranaghat to Calcutta. This will open out entirely new country, and though, to a certain extent, a local competition with the East Indian Railway, will also prove a feeder to the main traffic of the latter. One of the chief questions which will come before the Railway Conference at Simla is the use of brakes on Indian railways. At present the railways in this country are not provided with any special system of brakes, such as is in operation on almost every European line. Our railways depend entirely on hand-power brakes applied on the engines and brake-vans, but by way of practical experiment three systems of more efficient brake-power are shortly to be tried at Umballa. In connexion with the survey—or rather reconnaissance, for at first it will not be a detailed survey,—of the proposed line from Delhi to Hyderabad (Sind) by Mr. Horace Bell with a small staff, the Bombay Government will probably depute an officer to report on the prospects of the districts through which the proposed line would pass, to collect statistics, and so forth. If so, the selection probably lies between the two officers whom we have previously suggested, Colonel Trevor or Dr. J. Pollen. No more explicit official information has yet been received in India regarding the Umballa - Kalka - Simla Railway than the original telegrams that a company, of which Mr. Duff-Bruce is the chief promoter, had been granted a concession for a line from Delhi to Umballa. It is probable that the extension to Kalka has also been included; but as to this, and the further extension to Simla, nothing certain is known, except that the concession will be worked by the East Indian Railway.—*Indian Engineer.*

The Student's Column.

ARTIFICIAL STONES.—XIV.

Concretes (continued).

Liddell, in his prize essay on "Concrete," read before the Institute of British Architects in 1836, stated that his experience favoured a mixture of 2 parts of stones and 1 part of sand, mixed with just sufficient lime to form good mortar with the latter. He further pointed out that ordinary Thames ballast of the best sort consists approximately of stones 2 parts and sand 1 part; and in ordinary practice he deemed 1 part of lime to 7 parts of this ballast ample; he also insisted on the importance of using the lime while hot.

Mr. J. Douglass Mathews spoke favourably, in a paper read before the Architectural Association in 1876, of Mr. Matthew Allen's artificial stone, composed of Portland cement and coal breeze.

Hyatt's stone was formed of Portland cement and coal chippings, the blocks, when set, being left for long periods in water to harden.

H. Hill obtained, in 1881, a patent for the production of concrete, the essential feature of which is the arranging in suitable moulds of the stone chips and fragments to form the face, and the filling in at the back with Portland or other cement, mixed with sufficient water.

Buckwell's artificial stone,* introduced about thirty-six years ago, was composed of fragments of stone as large as would go freely into the mould employed, the interstitial spaces being filled with small fragments, and all the remaining portion filled in with cement (composed of chalk and Thames mud burnt together), mixed with the smallest possible amount of water. The mould in which the mixture was placed was perforated, and the contents being well rammed with hammers similar to those used for pile-driving, the little water that was used was pressed out by these violent blows, so that when taken from the mould the stone was quite hard, and rang when struck.

Roessler & Co.'s composition for staircases, &c., was formed of 3 parts of cement and 5 parts of sharp quartzoze sand.

T. C. Stone's patent provides for the use of the usual materials, which are thoroughly ground and burnt together, and then, being well pulverised, are mixed with water to form a stone producing cement. Stuart's "Granolithic Composition" is made up of crushed granite, stones, brick, slag, gravel, &c., with Portland or other cement; to the mixture is added hæmatite or other iron ore, and, if necessary, the composition may be further strengthened by the insertion of iron bars.

Messrs. Tucker provide a foundation of wire, metal, or wood, which they cover with hydraulic cement, into which are pressed suitable pieces of spar, marble, glass, slag, granite, or like substances.

In Elliott & Parson's patent (1884, pat. 3,363) the body of the stone is composed of sea-shore boulders, Bath, Portland, and York stone, well crushed, mixed, and saturated with water; to every 3 parts of this mixture 1 part of Portland cement is added; the blocks are cast into suitable moulds, in which space is left for the addition of a hard facing, which is formed from finely-crushed and sifted Kentish rag and Bath stone, with an equal part of Portland cement. The face of this coating, again, is made harder by a layer, one-eighth of an inch thick, of 2 parts of cement with 1 of moistened and fine sifted Kentish rag and Bath stones. The blocks thus finished are soaked in water and exposed to the air to harden.

The concrete used by Sir John Soane for forming the foundations of many public buildings was made from granite or other hard stone broken in small pieces (none exceeding the size of an ordinary hen's egg), laid in layers and closely rammed, and at every third layer grouted with a mortar, composed of Dorking lime and sharp river sand. This was repeated until the required thickness was attained.

In "Reading Stone" pieces of brick, stone, gravel, &c., are cemented and shaped with a mortar of lime and sand.

Mr. E. A. Bernays pointed out in 1880 that greater economy and efficiency results from the use of Portland cement in lieu of lime in concrete making; and at Chatham, concrete

* See *Art Journal*, 1852, p. 128.

formed of 1 part of Portland cement to 12 parts of shingle was found to give better results than 1 part of Warwickshire blue lias lime to 6 parts of shingle.

Hatfield's concrete or artificial stone, said to be tough and durable, is composed of a mixture of 1 part hydraulic cement, 1 part of crushed granite, and 3 parts of blast furnace slag, with a suitable quantity of water, and 1 part of slag wool thoroughly incorporated with the mass.

In Carr's patent, advantage is taken of the fact that a mixture of fat lime slaked to powder with finely-divided clay which has been calcined at a cherry-red heat, when subjected to a high pressure hardens rapidly and forms a stone of considerable durability.

In the production of Dubuis' stone, patented in 1869, hydraulic cement is employed of special composition made as follows:—Refractory clay and quick-lime are first ground together in the dry state, and then gypsum and boracic acid are added; these ingredients, having been well incorporated, are moistened, pressed into bricks, and burned at a white heat, and the cement is formed by grinding the product. This mixed with ground marble and coloured sand, together with the requisite amount of water, can be moulded into articles having a very stone-like appearance.

Speyser & Pillivuyt's patent (1885, pat. 12,908) also relates to the production of a cement suitable for artificial stone-making. Clay and lime are mixed with water, dried, granulated, washed, and ground to powder; when required for use the resultant compound is mixed with fat lime.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

14,556, Fireproof Iron Curtains. J. Stone.

To obviate the difficulty of working an iron curtain or screen large enough to cover very wide openings, the plates are by this invention riveted or hinged after the manner of a revolving shutter, and the rollers are strengthened and fixed so as not to give way in the middle with the weight. A light fireproof screen is made to slide up and down in L or T grooves, and the screen is lined with silicate cotton or similar material.

14,601, Fire Checks. T. R. Douse.

In the appliance which is the subject of this patent the design is to store any gas that will subdue flame, such as carbonic acid gas, in a suitable receptacle. On releasing the same by opening a valve or plug, controlled either by a lever or acting automatically, the gas will subdue and extinguish the flames. The mechanical devices suitable to this end are described in the specification.

14,639, Ventilator for Shafts, Roofs, &c. H. J. Alexander.

The object of this invention is to construct a ventilator of double-curved form in cross-section and with a top and bottom plate, through the uppermost of which is a hole for leading part of the uprising gases or vapour to a space under a conical hood. The lower ridges of the hood overlap, leaving openings over the top edges of deflecting-plates, which shield the openings existing between the partitions. The shields are curved so as to direct the wind into the hollows of the curved partitions, the draught of air blowing across the openings, which are in direct communication with the central portion of the ventilator.

3,181, Wire Door-spring Fittings. E. Hargreaves.

The regulation—or adjustment as regards force—of the ordinary steel wire or rod door-spring is, by this invention, so arranged that the force can be reduced or increased at any time as desired. It also allows the spring to be fitted to a right or a left-hand door. The parts and construction are fully described.

10,035, Ventilating and Air-heating Stove. R. W. Boyd.

The heating surfaces of the stoves which are the subject of this patent, are corrugated. The ash-pit and front of the fire are fitted with a damper to regulate the combustion, and the stove is also fitted with a baffle-plate to cause the flame and smoke to do extra duty before escaping to the flue. The stove sucks in fresh external air, and warms without over-heating it by causing it to pass over the corrugated surfaces.

10,614, Ventilators. J. Howorth.

In this invention, specially-shaped round vanes are used, with their sides bent to a right angle (or nearly so) to their lower ends. The action is similar to the well-known Archimedean screw-propeller ventilators, but with certain modifications, which increase the action.

NEW APPLICATIONS FOR PATENTS.

Sept 21.—13,632, R. Platt, Automatic retaining Catches for Doors, &c.—13,633, W. Charlesworth, Window-fastenings.—13,647, H. Montgomery, Sewer-gas Traps.—13,654, C. Ching, Chimney-breast Ventilator.—13,666, E. Mertz, Moistening and Cooling the Air in Buildings, &c.

Sept. 22.—13,694, J. Broadey, Water Waste-preventing Syphon Cisterns.—13,696, C. Scott, Brick Kilns Fired by Gas.—13,720, S. Varley and G. Driver, Lightning Conductors.

Sept. 24.—13,743, J. Howie, Water-closet Basins.—13,772, W. Thompson, Fastenings for Doors.

Sept. 25.—13,809, J. Wilson and A. Richardson, Window-sashes.—13,839, W. Dickson and R. Barr, Stoves and Cooking Ranges.

Sept. 27.—13,906, J. Cook, Drain and other Pipes.—13,909, J. Jackson, Water-closet Cisterns.—13,915, F. Broadbridge, Window-fastenings.—13,943, J. Osborne, Sash-fasteners.

PROVISIONAL SPECIFICATIONS ACCEPTED.

11,589, R. Hall, Attaching Cords to Window-sash Frames.—11,610, H. Johnson, Bricks for Pavements and Floors.—11,709, N. Brooke and A. Taylor, Pressing Bricks.—11,715, F. Wheeler and W. Johnson, Removing and Replacing Window-sashes, Cords, Sash-weights, &c.—11,795, J. Adams, Check-action Swing-door Hinges and Fittings.—11,811, F. and M. Baker, Door-checks.—11,828, F. McGauran, Gate-fittings.—11,889, E. Wilkinson, Window-fasteners.—11,952, J. Donkin, Hand-saws, &c.—11,953, G. Lowry, Windows.—12,038, W. Orr and P. Brown, Sheet-metal Structures.—12,055, C. Steane, Window Sashes and Frames.—12,668, J. Taylor, Stench-trap.—12,878, J. Howie, Flushing Cisterns.—12,935, A. Calipè, jun., Electrical Burglar-alarm.—13,167, W. Jago, Bakers' Ovens.—13,331, T. Churton, Fittings for Speaking-tubes, &c.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

15,114, G. Sonnenthal, Pile-drivers.—15,327, M. Am Ende and A. Buchanan, Iron and Steel Flooring for Bridges.—15,509, R. Oakley, Warming and Ventilating Buildings.—16,772, J. Macdonald, Electric Bells.—3,708, R. Lee, Fire-proof Ceilings, Walls, Partitions, Floors, Roofs, &c.—10,770, H. Hind, Door-fastener.—10,955, H. Schou, Door-stops and Closers.—11,788, T. Beals, Door-checks.—12,107, J. Bean and W. Gaines, Closing Doors and Preventing Slamming.

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

SEPT. 24.

By GEORGE GOULDSMITH, SON. & CO.

Brixton, Acre-lane — Upton Cottage, and another cottage adjoining, 18 years, rent 56*l.*	£505

SEPT. 26.

By H. V. CHEW.

Stratford, Cedars-road—Elm Cottage, freehold	740
79 to 85 odd, Cedars-road, freehold	1,185
George-lane—7, Primrose-terrace, freehold	250

SEPT. 27.

By C. C. & T. MOORE.

Leyton—1, 2, and 3, Rosebank Cottages, freehold	480
Snaresbrook, Hermon Hill — A plot of freehold land	320

By WILKINSON & SON (at Brighton).

Brighton—58, Montpelier-road, freehold	1,510

By WORSFOLD & HAYWARD (at Dover).

Dover—157 and 159, London-road, freehold	580
The freehold premises known as the Buckland Foundry	280
Shepherdswell—7, The Terrace, freehold	250
Dover—9, Pleasant-row, freehold	100

MEETINGS.

WEDNESDAY, OCTOBER 10.

Auctioneers' Benevolent Fund (*Estate Exchange, Auction Mart*).—Annual Meeting of Donors and Subscribers. 3 p.m.

FRIDAY, OCTOBER 12.

Junior Engineering Society (*Westminster Palace Hotel*). Presidential Address by Professor W. C. Unwin, F.R.S., on "Illustrations of the Use of Theory in the Work of the Engineer." 8 p.m.

SATURDAY, OCTOBER 13.

Liverpool Engineering Society. — Visit to the Vyrnwy Waterworks. 9·30 a.m.

Cadbury, Somerset.—Near to Templecombe Junction, in the south-eastern corner of the county, and distant four miles from Castle Cary, a former seat of the Percevals, lies Cadbury House, a commodious old mansion, with a northern front after the Tudor style. Upon a lofty hill, known as Hill Fort, south-westwards of the village, is a moated mound, King Arthur's Castle. Other earthworks on that same acclivity are regarded as remains of a British encampment. Supposed similar entrenchments, upon a hill in Tickenham parish, ten miles to the south-west of Bristol, are called Cadbury Barrow. Cadbury House, together with the estate, is for sale. The property comprises the Castle, the two villages of North and South Cadbury, fifteen farms, various cottages, &c., yielding a rental of about 4,800*l.* a year, and extending over 2,485 acres. The parish church of St. Michael, recently restored, was rebuilt by Lady Botreaux, in the early part of the fifteenth century; the advowson, which will be included in the sale, includes the rectory and nearly 37 acres of glebe-land; the tithes are commuted at 260*l.* 10s.

Miscellanea.

New Church, Paisley.—On the 22nd ult. the memorial-stone of a new church in course of erection in Love-street, Paisley, was laid by Mr. James A. Campbell, M.P. The church is in the Gothic style of architecture, and will be built throughout of fine stone from Auchenlee Quarry. The principal front is in Love-street, and entrance will be there obtained by a porch having a recessed and moulded arch doorway. An additional exit porch has been placed to the north side of the building. In the front gable, and above the main entrance, is a triplet lancet window. Internally the church will have a central and two side aisles. The pulpit is at the west-end gable, and over it there will be a triplet window formed in a recessed arch. All the interior woodwork is to be of selected pitch-pine, the windows of tinted antique cathedral glass, and the roof will be of open timber. Sitting accommodation is to be provided for 724 persons. To the south of the building a hall is to be erected for church purposes which will be capable of holding 200 persons; and in this building there will also be the vestry and session-house, with the heating chamber and usual retiring-rooms. It is expected that the cost of the church and hall will be about 2,600*l.* The architect is Mr. P. Caldwell, of Paisley.

The Merton Hall Estate, Wimbledon.—Last week Messrs. Baker & Sons offered for sale, at the Prince of Wales Hotel, Wimbledon, the second portion of this estate, on which several roads have been formed, and a large number of houses already erected of a good character. The plots submitted were eighty-three in number, including several shop-plots, and having frontages of 20 ft. and depths of from 160 ft. to 180 ft. The auctioneer, in submitting the property, said that it was one of the few uncovered estates in the neighbourhood of Wimbledon, where building land was rapidly rising in value. He pointed out that the opening of the Wimbledon and West-End Railway, which will now shortly take place, giving direct access to Victoria and the West-End generally, would still further enhance the value of the estate as a suburban residential locality. He also reminded the company present that a comprehensive system of main drainage had been completed on every part of the estate, and also that there was an ample supply of water from the mains of the Lambeth Water Company. A large number of the plots offered were sold at from 38*l.* to 40*l.* each, being at the rate of about 2*l.* per foot frontage.

Technical Institutes in North London.—The movement for the establishment of technical institutes in North London has just received a considerable impetus by a very liberal offer which has been made by the Charity Commissioners. The Commissioners have intimated their willingness to assist in the promotion of these institutes in the district to the extent of 200,000*l.*, provided that a similar sum is raised by the localities, or, if the amount named be not reached, *pro ratâ* in proportion to the sum which may be subscribed. The Commissioners have also suggested that the Parliamentary boroughs of Hackney, Islington, St. Pancras, and Finsbury should be grouped together to form a North London district, and in response to this suggestion, an executive committee, consisting of forty members, has been formed within the last few days in each borough, from each of which five have been elected to form a central executive committee of twenty members. Several local meetings of the committees were held last week, and we understand that liberal subscriptions in the several boroughs interested are rapidly flowing in.

The Plumbers' Company.—At the meeting of the Court of this Company at Guildhall on Saturday, Mr. William Henry Bishop, Royal Exchange-buildings, was sworn into the office of Master of this Company; Mr. Charles Hudson, Greenwich, to that of Upper Warden; and Mr. W. Digby Seymour, Q.C., to that of Renter Warden, for the ensuing year. At the same meeting the honorary freedom of the Company was conferred upon Messrs. W. H. Perry, W. H. Allen, J. Radcliffe, and W. Sevenoaks, four practical plumbers, who succeeded in passing in honours the City and Guilds of London Institute technological examination for plumbers, and who are now engaged as certificated teachers of plumbers' classes in the technical schools at Bristol, Cardiff, Manchester, and Windsor respectively.

Value of Building Sites at Gunnersbury and Hanwell.—Last week, Mr. Richard J. Collier offered for sale, at the Star and Garter Hotel, Kew Bridge, fifty plots of valuable freehold building land, on the Sutton Court Lodge Estate, Gunnersbury. The estate is within five minutes' walk of Gunnersbury station of the District, Metropolitan, and North London Railways, and the Chiswick station on the London and South-Western line. The property was described as pleasantly situated overlooking the grounds of the Chiswick Park Cricket and Lawn-tennis Club, near the river, and within a mile of the Royal Botanical Gardens, Kew. Several wide roads have been laid out on the estate, named respectively Burnaby-gardens, St. Mary's-grove, Grove Park-lane, and Gordon-road. The plots offered have frontages to Burnaby-gardens and Grove Park-lane, the greater portion having frontages of 20 ft. and depths of 90 ft., whilst a few larger ones have frontages of 50 ft. and depths of 120 ft., the whole of the lots intended for the erection of high-class villas only. There was a numerous attendance of buyers, with an active demand for the several plots. Out of the fifty lots offered, upwards of thirty were sold, realising from 75*l.* to 90*l.* each, or an average of from 4*l.* to 4*l.* 10s. per foot frontage, the total proceeds of the sale amounting to about 2,400*l.*——Mr. Collier also submitted to competition last week, at the Lecture Hall, Hanwell, fifty-nine plots of freehold building land on the Churchfield estate, Bostonthorpe, Hanwell. The estate was described as situated a few minutes' walk from the Hanwell station of the District, Metropolitan, and North London Railways, having frontages to Bishop's and St. Dunstan's roads, leading out of the main road to Brentford, known as Boston-road. The plots varied in dimensions from 17 ft. to 25 ft. frontage, and depths of from 70 ft. to 110 ft. Several were sold at prices ranging from 18*l.* to 33*l.* each.

The English Iron Trade.—Although somewhat unsettled by the drop in warrants, the English iron market remains fairly firm. The fall in the warrant market has had a tendency to check buying of pig-iron at present, consumers expecting further reductions in price, and makers not showing any disposition to give way. Considering the active condition of the iron trade generally, it does not appear likely that buyers will have their way. Scotch makers quote their iron about 6d. a ton lower than last week. Where there is any giving way amongst makers in the North of England, the reduction is not more than 3d. a ton; but most manufacturers hold firmly to their previous rates. Bessemer iron in the north-west has experienced a drop in the week of quite 1s. 6d. a ton. Pig-iron remains firm both in Lancashire and Staffordshire. The buying of finished iron is somewhat slower, but the market continues pretty strong, and better prices are talked of. Sheets have gone up 2s. 6d. a ton. The demand for tinplates is very good, and rates have been advanced from 3d. to 6d. a box. There is a fairly good enquiry for nearly all classes of steel, but the chief demand is for ship-plates and angles. Shipbuilders continue to book orders, and are, at the same time, much pressed for the completion of ships in hand. Engineers keep well employed, and are able to insist upon better prices.—*Iron.*

Book Covers.—Should books as they come from the press have a cloth cover or a paper one? This is a question which, if fairly asked, would, no doubt, result in an answer favouring a change from the prevalent fashion of binding in cloth covers and stiff boards. Looked at from an artistic point, cloth covers are unsatisfactory. Bookbinders' cloth seldom has any of that beauty of grain or texture admired so much in leather, silk, and wool; and when attempts are made to rib or grain it in order to make the surfaces catch the light and let the shadows fall, the result is a mean and unsuccessful imitation. Besides, as a piece of decorative furniture, a cloth-bound book is seldom chosen with success; often too strong in colour for anything to come near it, there is always a cold shine that prevents the eye from resting on it with satisfaction. It is difficult, too, to understand why those who want to have their best books bound in leather of their own liking have to pay for cloth binding which has to be destroyed. Surely if a book is worth keeping it ought to be bound in leather; and if it is only one of fashion's fancy, and passing interest, paper covers are expensive enough for it. And what designs and illustrations could be printed on these paper covers!—*Scottish Art Review.*

The Registration of Plumbers. — A largely-attended meeting of influential persons interested in the registration and special training of plumbers was held at West Hartlepool. The Mayor of West Hartlepool presided, and was supported by the Mayor of Hartlepool; Prof. Garnett, Durham College of Science, Newcastle; Dr. Gourley, Medical Officer of Health; Mr. J. W. Brown, C.E., Borough Surveyor; Dr. Swanwick, and others. A large number of journeymen and apprentice plumbers were present. The Chairman drew attention to the public importance of the object which the meeting was called to promote. It might be asked why plumbers should receive more attention than any other class of craftsmen. He had no doubt, however, that when they came to consider the serious injury to health which might result from the imperfect joining of a drain-pipe, they would see how necessary it was that plumbers should undergo proper training. They might just as well have no drain-pipes at all as bad connexions. The Secretary of the District Council for the Registration of Plumbers explained the way in which the system was originated by the Worshipful Company of Plumbers at the "Healtheries," and drew attention to the fact that their object was not limited to mere registration of plumbers, but that it included a scheme for the education of apprentices in subjects which would be of the greatest possible use to them in the exercise of their craft. The Mayor of Hartlepool expressed the pleasure he felt at being present. He, like many others, had suffered from bad plumbing. The future plumbers would have to work with their heads more than they had done in the past. Therefore they must look to their laurels. He hoped the registration of plumbers would bring about a reduction of both plumbers' and doctors' bills. Mr. Brown, C.E., said that from time to time, not only in that town but in other localities as well, he had come in contact with plumbing work which was a scandal to the trade. He felt, therefore, the strongest sympathy with the registration scheme, and he believed it would create a healthy rivalry among the members of the craft, which would be for the good of the country generally. Professor Garnett said that their object was to raise plumbers, by means of technical instruction, more on a level with the medical profession, so that occupiers of houses would find them trustworthy advisers in cases of sickness. They wanted the assistance of architects, who should make a special point of giving the plumbing portion of their contracts to registered plumbers. Councillor Pyman (Chairman of the Health Committee), Dr. Gourley, Mr. Brown, C.E., and Councillor Garry were elected to represent the public, and four masters and four journeymen to represent the plumbing trade on the District Council.

New Recreation Grounds at Croydon.—Some time since the Corporation of Croydon decided upon the purchase of land for the purpose of forming a recreation ground, and the undertaking is now about to be carried out, the Local Government Board having just agreed to the application of the Council for permission to purchase the necessary land. The sites which the Local Government Board have empowered the Council to purchase are altogether about twenty-five acres in extent, and are situated partly in Upper Norwood and partly in South Norwood. The land to be secured belongs to the Ecclesiastical Commissioners, the London and Brighton Railway Company, the Crystal Palace Company, the Briton Medical Life Assurance Company, and some private owners. The cost of purchasing the land and laying out the grounds is estimated at 25,000*l.*, and the Corporation have decided to proceed immediately with the works.

Featherstone Sewerage.—The Local Board of Featherstone, near Leeds, having received notice of complaint from Lord St. Oswald, as to a nuisance arising from their present sewage farm, Mr. M. Paterson, M. Inst. C.E., of Bradford, has been instructed to report as to the best means of remedying the nuisance. His conclusions are: (1) That the twenty-five acres of land now leased to the Board for sewage irrigation by gravitation, are useless, being four or five feet of strong and intractable clay with no soil worthy of the name; (2) that to lift the sewage fifty feet on to the nearest land suitable would cost 5,000*l.*; (3) that precipitation works would be more costly than land filtration, with a less efficient result; and (4) that land filtration works over five acres of land, at a cost of 1,250*l.*, offers the best practicable means of extricating the Board from their present dilemma.

Conversion of a Public Hall into a Steam Laundry.—St. Andrew's Hall, at Balham, which has for several years past been largely used for public meetings, concerts, and other entertainments, has just been purchased by a company of City capitalists, with the intention of converting it into a steam laundry, and a few days since the whole of the fixtures, fittings, and furniture, including stages, platforms, stage scenery, and organ, were disposed of by public auction prior to the alterations in the building being commenced. The sale and conversion of the hall has come upon the inhabitants of Balham as a surprise, as it was almost in constant use for public purposes, and considered to be a profitable undertaking. It is stated that the owner was induced to part with the property by a very tempting offer from the City capitalists. As the population of Balham is rapidly increasing, the inconvenience of being without a public hall is being much felt, and already a committee has been formed with the view of securing the erection of a new public hall.

Lord Huntly's Estates, Deeside.—Some portions of the Marquess of Huntly's Deeside sporting estates will be offered for sale at Edinburgh on the 17th instant. The eight lots comprise the Glentanar deer forest (upset price 120,000*l.*) which was in the market last year; Aboyne village and Rosshill (30,000*l.*), Birse Forest and Huntly Lodge, Aboyne (40,000*l.*), the Muir of Dess (11,000*l.*), Braeruddoch and Ferrar, by the Dinnet Burn (15,500*l.*), and Dess, south of Deeside-road, with nearly three miles of salmon-fishing on the Dee (18,000*l.*)

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Teak, E.I. ..... load	8	0	0	12	10	0
Sequoia, U.S. ..... foot cube	0	2	3	0	3	0
Birch, Canada ..... load	2	15	0	4	15	0
Fir, Dantsic, &c.	2	0	0	4	0	0
Oak ,, ...	2	0	0	4	10	0
Canada	4	0	0	6	10	0
Pine, Canada red	2	10	0	3	10	0
,, yellow	2	10	0	4	0	0
Lath, Dantsic ..... fathom	3	10	0	5	0	0
St. Petersburg	5	0	0	6	0	0
Wainscot, Odessa, crown	2	10	0	3	0	0
Deals, Finland, 2nd and 1st ...std.	9	0	0	10	0	0
,, 4th and 3rd	7	0	0	9	0	0
Riga	7	0	0	8	0	0
St. Petersburg, 1st yellow	9	10	0	15	10	0
,, 2nd ,, ...	9	0	0	10	0	0
,, white	7	10	0	10	10	0
Swedish	7	10	0	16	10	0
White Sea	8	10	0	17	10	0
Canada, Pine, 1st	16	0	0	25	10	0
,, ,, 2nd	10	10	0	17	10	0
,, ,, 3rd, &c.	7	10	0	10	10	0
,, Spruce, 1st	9	0	0	10	0	0
,, 3rd and 2nd	7	0	0	8	10	0
New Brunswick, &c.	6	10	0	8	0	0
Battens, all kinds	5	10	0	12	0	0
Flooring Boards, sq., 1 in., prepared, First	0	11	0	0	14	6
Second	0	8	0	0	10	9
Other qualities	0	5	6	0	7	9
Cedar, Cuba ..... foot	0	0	3½	0	0	3½
Honduras, &c.	0	0	3½	0	0	3½
Australian	0	0	2	0	0	3
Mahogany, Cuba	0	0	4½	0	0	5½
St. Domingo, cargo average	0	0	4½	0	0	5½
Mexican ,, ...	0	0	4	0	0	4½
Tobasco ,, ...	0	0	4½	0	0	5½
Honduras ,, ...	0	0	4½	0	0	5½
Box, Turkey ..... ton	5	0	0	12	0	0
Walnut, Italian ..... foot	0	0	4½	0	0	6

METALS.						
Iron—Bar, Welsh, in London ...ton	4	17	6	5	0	0
,, ,, at works in Wales ...	4	7	6	4	10	0
,, Staffordshire, in London ...	5	5	0	6	15	0
Copper—						
British, cake and ingot..... ton	78	10	0	80	0	0
Best selected	80	0	0	81	0	0
Sheets, strong	88	0	0	0	0	0
Chili, bars	98	10	0	0	0	0
Lead—						
Pig, Spanish ..... ton	14	17	6	0	0	0
English, common brands	15	0	0	15	2	6
Sheet, English	16	2	6	0	0	0
Spelter—						
Silesian, special ..... ton	19	5	0	0	0	0
Ordinary brands	19	0	0	0	0	0
Tin—						
Straits ..... ton	102	0	0	0	0	0
Australian	102	0	0	0	0	0
Zinc—English sheet ..... ton	22	0	0	23	0	0

OILS.						
Linseed ..... ton	19	5	0	0	0	0
Cocoanut, Cochin	26	0	0	27	10	0
Ceylon	25	0	0	0	0	0
Palm, Lagos	23	10	0	0	0	0
Rapeseed, English pale	28	10	0	0	0	0
,, brown	27	0	0	27	5	0
Cottonseed, refined	21	15	0	22	0	0
Tallow and Oleine	19	0	0	45	0	0
Lubricating, U.S.	4	0	0	6	0	0
,, refined	7	0	0	12	0	0
Turpentine—						
American, in casks ..... cwt.	1	11	0	0	0	0
Tar—						
Stockholm ..... barrel	1	1	0	0	16	6
Archangel	0	11	0	0	11	6

COMPETITIONS AND CONTRACTS.

Epitome of Advertisements in this Number.

COMPETITIONS.

Nature of Work.	By whom required.	Premium.	Designs to be delivered.	Page.
Laying out Property as Pleasure Grounds ...	Penzance Town Council	20 gs. and 10 gs. ...	Oct. 20th	ii.
Clock Tower ...	Yeovil Corporation ...	Not stated...	Oct. 30th	ii.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Well-Sinking, &c. ...	Cheshunt Local Board	T. Bennett...	Oct. 9th	xi.
Engines and Pumps ...	do.	do.	do.	xi.
Cast-Iron Water Mains ...	do.	do.	do.	xi.
Broken Guernsey Granite ...	Willesden Local Board	O. Claude Robson...	do.	xiii.
Making-up and Paving Road ...	Wandsworth Bd. of Wk	*Official*...	do.	xi.
Drainage Works...	Ecclesall Bierlow R.S.A	T. G. Edwards ...	Oct. 10th	xiii.
Paving, &c., Works ...	Hammersmith Vestry...	H. Mair ...	do.	xiii.
Removal of Fine Ash and Clinkers ...	St Mary's (Battersea) Vestry	J. T. Pilditch ...	do.	xiii.
Making-up Roads ...	Walthamstow Local Bd.	*Official*...	Oct. 12th	ii.
Elementary Schools ...	Brighton, &c , Sch. Bd.	T. Simpson...	Oct. 13th	ii.
New Streets Works ...	Vestry of St. Giles, Camberwell...	*Official*...	Oct. 15th	xi.
Road-making and Paving Works ...	Fulham Vestry...	J. P. Norrington ...	Oct. 17th	xiii.
Barging away Dust, Refuse, &c. ...	do.	do.	do.	xiii.
Mortuary and Coroner's Court ...	do.	do.	do.	xiii.
Underground Urinals and Water-Closets, &c.	Commis. of Sewers ...	*Official*...	Oct. 19th	ii.
Sewerage Works, Isle of Man ...	Ramsey Town Commrs.	J. Mansergh ...	Oct. 22nd	xiii.
Works, Repairs, &c...	War Department ...	*Official*...	Oct. 24th	ii.
Receptacles for Dust, Refuse, &c. ...	Lambeth Vestry ...	do.	Oct 25th	ii.
Terrace Walk, Shelter Hall, &c. ...	Brighton Town Council	P. C. Lockwood...	Nov. 15th	xiii.
Superstructure of New Banking Premises...	National Prov. Bank of England ...	A. Waterhouse...	Not stated	xi.

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *Noon on Thursdays.*]

ASHDOWN PARK.—For the erection of a lodge at High Beeches, Ashdown Park. Mr. S. W. Haughton, architect and surveyor, East Grinstead :—

W. Pledge, East Grinstead (accepted). £215 17 0

ASHDOWN PARK.—For the erection of a lodge at Wytch-cross, Ashdown Park. Mr. S. W. Haughton, architect and surveyor, East Grinstead :—

W. Pledge, East Grinstead (accepted). £283 0 0

ASHFORD (Kent).—For making-up, paving, &c., roads, Farbrace Estate, Ashford, for the Local Board, Mr. J. Wilson, surveyor.

J. Wood, Ashford ...	£935 0 0
J. Hughes, Ashford ...	832 13 3
Howland Bros., Ashford ...	669 0 0
Woodhams & Fry, Greenwich...	660 10 0
E. Joy, Ashford ...	625 0 0
Wallis & Son, Maidstone (accepted) ...	610 0 0

BRENTFORD.—For dwarf wall and iron railing at Back-lane West, for the Brentford Local Board. Mr. F. W. Lacey, A.-M.I.C.E., surveyor :—

B. Cox, Battersea ...	£247 9 0
W. Parker, Brentford...	240 0 0
T. Torode, Tottenham...	175 0 0
Wood & Co., Goswell-road, E.C...	163 0 0
T. Anthony, Brentford ...	147 0 0
J. Barnes, Brentford (accepted) ...	142 0 0

DULWICH.—For a hall and other additions to the Dulwich Working Men's Conservative Club, Clumber House, East Dulwich-grove, for Mr. J. Blundell Maple, M.P. Mr. Morton M. Glover, architect :—

S. Cooper ...	£1,279 0 0
J. J. Phillips...	1,253 19 7
W. Smith ...	1,239 0 0
J. T. Graves ...	1,155 0 0
R. Smith...	1,150 0 0

DULWICH.—For a hall and other additions to the Dulwich Conservative Club, Crystal Palace-road, Dulwich, for the Committee of the Club. Mr. Morton M. Glover, architect :—

H. Winterbourn ...	£445 0 0
W. Smith ...	409 0 0
A. Mackie...	390 0 0
S. Cooper ...	379 0 0
J. T. Graves ...	377 0 0
J. Christie...	350 0 0

EAST GRINSTEAD.—For the erection of a dwelling-house and shop in the London-road, East Grinstead, for Mr. G. Arnold. Mr. S. W. Haughton, architect and surveyor, East Grinstead :—

J. Morris, Ashurst Wood...	£497 0 0
Charlwood Bros., East Grinstead*...	484 0 0
A. Foster, East Grinstead...	475 0 0

* Accepted.

EXETER.—For new drainage system at the City Workhouse for the Corporation of Guardians. Messrs. Wilkinson & Warren, architects, Exeter. Quantities supplied :—

Bull, Southampton ...	£1,793 0 0
Scadding & Son...	1,350 0 0
Tree & Bolley ...	1,279 0 0
Hubber & Son ...	1,080 0 0
J. G. Stephens ...	1,070 0 0
Coles ...	1,060 0 0
Phillips ...	1,005 0 0
Setter Bros.* ...	998 0 0

[Surveyor's estimate, £1,062. 10s.]

* Accepted conditionally.

GORTON.— For alterations to the Gorton Branch Stores, belonging to the Droylsden Co-operative Society. Mr. Frederic Smith, architect, Manchester. Quantities by the architect :—

Hannah Fielding ...	£120 0 0
F. W. Bates ...	114 0 0
Haughton ...	103 6 0
J. Riley ...	95 0 0
E. & C. Jackson ...	85 0 0

HAMPSTEAD.—For house and shops, Heath-street, Hampstead. Mr. T. K. Green, architect, 70, Finsbury-pavement, E.C. :—

Parker...	£1,296 0 0
Allen & Sons ...	1,116 0 0
Frost ...	1,115 0 0
Reynolds ...	1,080 0 0
Pain Bros. ...	1,070 0 0
Henley & Co...	1,059 0 0

HARTFIELD.—For the erection of three cottages at Hartfield, for Mr. R. S. Killick, Groombridge. Mr. S. W. Haughton, architect and surveyor, East Grinstead :—

White & Humphries, Tunbridge Wells	£549 0 0
J. Luxford, Forest-row ...	535 13 0
R. C. Farmer, Hartfield ...	498 0 0
G. H. Mighall, West Hoathly...	478 0 0
Charlwood Bros., East Grinstead ...	474 0 0
W. Pledge, East Grinstead (accepted)	377 0 0

KETTERING.—For the erection of a villa residence in Headland-road, for Mr. A. Tutty. Mr. H. A. Cooper, architect. Quantities supplied by architect :—

E. B. Gibson...	£438 9 0
E. Barlow, Rothwell ...	417 0 0
G. Ginns...	399 0 0
C. & F. Henson...	398 19 0
G. V. Henson ...	397 0 0
W. J. Payne ...	392 15 0
F. Barlow, Rothwell ...	385 0 0
J. Coltman (accepted) ...	383 0 0

[Rest of Kettering.]

KETTERING.—For the erection of a villa residence, in Headland-road, for Mr. J. C. Bell. Mr. H. A. Cooper, architect. Quantities supplied by architect :—

C. & F. Henson...	£692 0 0
J. Bellamy ...	645 0 0
J. W. Hart (accepted) ...	600 0 0
Manby & Coltman ...	597 0 0

[All of Kettering.]

KETTERING.—For the erection of offices, &c., Gas-street, for the Kettering Gas Company. Mr. H. A. Cooper, architect. Quantities supplied by architect :—

G. Ginns ...	£1,014 0 0
Dickens & Mutton ...	978 0 0
S. Manby...	938 0 0
C. & F. Henson...	915 0 0
W. J. Payne ...	878 0 0
H. F. Henson...	876 0 0
G. V. Henson...	868 0 0
E. Barlow, Rothwell ...	855 0 0
A. Barlow ...	828 0 0
F. Barlow, Rothwell ...	820 0 0
C. Sharman (accepted) ...	800 0 0

[The rest of Kettering.]

LONDON.—For building shop and premises, Blackfriars-road, for Mr. John Rawle. Mr. T. F. Shaw, architect, Harlesden. Quantities supplied :—

W. H. Ashford & Co., Kensington...	£1,780 0 0
F. Tarrant, Camberwell ...	1,454 0 0
W. Oldrey & Co., Westbourne Park.	1,379 0 0
G. Parker, Peckham ...	1,325 0 0
Holloway Bros., Battersea ...	1,311 0 0
Cheswell, Brixton ...	1,230 0 0
Hollingsworth, Peckham ...	1,220 0 0
Balaam Bros., Old Kent-road* ...	1,150 0 0

* Accepted.

LONDON.—For repairs to Nos. 19, 21, and 23, Westmoreland-place, City-road, for the Trustees of the Rouse Estate. Mr. Walter J. Ebbetts, architect, Savoy House, 115, Strand, W.C. :—

H. Baylis (accepted) ...	£190 0 0

LONDON.—For the erection of warehouses and offices at London-street, Ratcliff, for Mr. Robert Hough. Mr. Joseph Sawyer, architect, 63, Chancery-lane, W.C. :—

Paynes Bros. ...	£4,000 0 0
Higgs ...	3,574 0 0
H. J. Dover, Wood, & Co....	3,505 12 0
Curtis & Sons...	3,438 0 0
Manley & Son...	3,324 0 0
Allen & Son, Kilburn ...	3,187 0 0
Saw ...	3,184 0 0
Brass & Son, Old-street ...	3,159 0 0
J. T. Chappell, Pimlico ...	3,058 0 0
Staines & Son...	3,044 0 0
Kirk & Randall ...	2,960 0 0
H. L. Holloway...	2,900 0 0
W. Shurmur, Clapton ...	2,880 0 0
G. Stevenson ...	2,853 0 0
Beach ...	2,849 10 0
Howell & Son...	2,834 0 0
Parker ...	2,798 0 0
Dearing & Son, Islington ...	2,781 0 0
F. J. Coxhead ...	2,772 0 0
S. & W. Pattinson ...	2,752 0 0
Brickel ...	2,590 0 0
J. O. Richardson ...	2,587 0 0

LONDON.—For alterations, &c., to premises, No. 21, Budge-row, for Messrs. James Wrigley & Son (Limited). Mr. Albert E. Pridmore, architect, 2, Broad-street-buildings, E.C. :—

		A.*
Colls & Son ...	£226 0 ...	£10 0
McCormick & Sons...	188 0 ...	10 0
W. Evans ...	179 3 ...	5 15
Hewett & Sewell ...	155 10 ...	13 5
Thos. Taylor (accepted)...	147 0 ...	12 0
J. Waddington (too late) ...	140 7 ...	15 18

* Additional cost of lavatory.

LONDON.—For erecting back addition and sundry alterations at 80 and 89, Upper-street, Islington, for Miss Edwards. Mr. E. J. Harrison, architect, 72, Chancery-lane, W.C. Quantities not supplied :—

Ward & Lamble ...	£597 0 0
Drew & Cadman ...	498 0 0
Lilley ...	487 0 0
Baylis ...	334 0 0

LONDON.—For gasfittings at the "Bell Tavern," Pentonville-road :—

Strode & Co...	£153 0 0
Steadman ...	145 0 0
Buckley & Beech...	130 0 0
W. Winn (accepted) ...	120 0 0

LONDON.—For removing one of the iron school buildings on the Shillington-street site (West Lambeth BH), and re-erecting it on the Tooting Graveney site (West Lambeth AQ), in order to provide temporary accommodation on the latter site pending the completion of the proposed enlargement of the Tooting Graveney School, for the School Board for London. Mr. T. J. Bailey, architect :—

G. Howard...	£167 0 0
T. Cruwys ...	160 0 0
Croggon & Co., Limited...	155 0 0
A. Cooper & Son ...	127 0 0
G. R. Earsdon* ...	118 0 0

*Recommended by the Works Committee for acceptance.

LEYTONSTONE.—For distempering and cleansing works, small quantity of painting and general repairs at the school at Leytonstone, belonging to the Guardians of the Poor of Bethnal-green. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C. Quantities *not* supplied.

Finch ...	£290 0 0 !
Higgs ...	260 0 0
Sale ...	200 0 0
Edmunds ...	192 0 0
Robertson ...	162 18 0
Richards...	157 19 0
Everett ...	149 0 0
Sherwood ...	147 0 0
Lilly...	139 0 0
Willmott...	138 0 0
Munday ...	135 0 0
Barrett & Power ...	135 0 0
Wythe...	131 0 0
Good ...	130 0 0
Steven Bros. ...	128 0 0
Derby ...	123 0 0
Shereen & Co...	120 0 0
Collyer...	117 0 0
Edwards ...	85 0 0
Knight & Son, Chestnut-road, Tottenham (accepted)...	75 0 0 !

LINGFIELD (Surrey).—For alterations and additions to Ford Cottage, Lingfield, Surrey. Mr. S. W. Haughton, architect and surveyor, East Grinstead :—

Charlwood Bros., East Grinstead ...	£487 0 0
Luxford, J., Forest-row...	454 11 9
Pledge, W., East Grinstead (accepted)	406 13 0

MANCHESTER.—For new branch stores and four cottages at Rainsough Brow, near Manchester, for the Prestwich Co-operative Society, Limited. Mr. Frederic Smith, architect, 29, Bridgewater-chambers, Manchester. Quantities by architect :—

J. Robinson ...	£2,800 0 0
R. Neill & Sons ...	2,382 0 0
Burgess & Galt...	2,216 0 0
Leach ...	2,215 0 0
J. Barker, Rainsough Brow* ...	2,205 0 0

* Accepted.

MANCHESTER.—For villa residence, Monton-green, near Manchester, for Mr. W. H. Eastwood. Mr. Frederic Smith, architect, 29, Bridgewater-chambers, Manchester. Quantities by architect :—

J. Robinson ...	£759 10 0
J. Lindsay ...	750 0 0
E. Gradisky ...	700 0 0
Smith & Goodwin...	682 0 0
W. Harrison ...	678 0 0
J. Cocker ...	610 0 0
Moore & Sons ...	600 0 0
Brookes & Sons ...	598 0 0
Chapman & Hollingworth...	595 0 0
E. Roper...	595 0 0
Burgess & Galt, Ardwick, Manchester*	590 0 0

* Accepted.

SEVENOAKS.—For levelling, metalling, kerbing, channelling, tar paving, sewers, storm-water drains, with manholes, ventilators, gullies, &c., to the following private roads, for the Sevenoaks Local Board. Mr. Jabez Mann, Town Surveyor:—

	Part of Argyle-road.	Victoria-road.	Road by Infant Schools and Savings Bank.	Totals.
George Osenton, Westerham	£423 7 6	£459 19 0	£155 13 0	£1,038 19 6
James Dickson, St. Alban's	387 15 6	472 7 10	164 5 10	1,024 9 2
J. L. Cattell, Lowestoft and London	428 0 0	410 0 0	150 0 0	988 0 0
Thomas Lansbury, Bromley	397 17 2	438 14 7	142 10 10	979 2 7
George Bell, Tottenham	396 0 0	434 0 0	145 0 0	975 0 0
W. Langridge, Croydon	390 17 7	410 16 3	144 14 3	946 8 1
Henry Owen, Sevenoaks*	376 10 1	394 19 6	126 15 4	898 4 11
Henry Lake, Croydon	367 11 11	389 11 9	140 15 3	897 18 11
[Surveyor's estimates	388 19 6	414 16 3	137 2 6	940 18 3]

* Accepted according to schedule of prices.

MANCHESTER.—For alterations, &c., to the branch stores, Clayton, near Manchester, for the Droylsden Co-operative Society. Mr. Frederic Smith, architect, 29, Bridgewater-chambers, Manchester. Quantities by the architect:—

J. Riley	£195 0 0
Shernatt	177 0 0
Haughton	174 17 6
E. & C. Jackson	175 0 0
F. W. Bates	160 0 0
Hannah Fielding,* Droylsden	160 13 0

* Accepted.

NORTH FINCHLEY.—For the erection of shop and dwelling-house in the High-road, North Finchley, for Mr. E. Painter. Mr. G. H. Greatbach, architect, 51, Moorgate-street, E.C. No quantities:—

J. Grover & Son	£900 0 0
C. Plowman	760 0 0
Stillwell & Ely (accepted)	675 0 0

PAIGNTON.—For business premises in the Palace-avenue, Paignton, for Mr. Wm. Lambshead. Mr. Geo. Soudon Bridgman, architect, Torquay:—

F. W. Vanstone	£2,439 0 0
C. & R. E. Drew	2,425 0 0
H. P. Rabbich	2,372 13 0
H. Webber	2,369 0 0
M. Bridgman (accepted)	2,357 18 5

PAIGNTON.—For masons', slaters', and plasterers' work in connexion with the erection of business premises in Victoria-street, Paignton, for Mr. Robert Waycott. Mr. George Soudon Bridgman, architect, Torquay:—

H. Webber	£1,193 0 0
H. P. Rabbich	1,148 5 0
M. Bridgman	1,148 0 0
S. Webber	1,133 0 0
F. W. Vanstone	1,118 0 0
E. Westlake (accepted)	920 0 9

PAIGNTON.—For school buildings in Well-street, Paignton, for the Marist Fathers. Mr. George Soudon Bridgman, architect, Torquay:—

Dellafield & Pollard	£362 10 0
C. & R. E. Drew	360 0 0
Marcus Bridgman	350 10 0
H. Webber	349 0 0
H. P. Rabbich	345 10 0

PENGE.—For a hall and other additions to the Penge Conservative and Unionist Club, Beckenham-road, Penge, for Mr. J. Blundell Maple, M.P. Mr. Morton M. Glover, architect:—

R. Eustace & Son	£2,013 0 0!
T. Wootton	1,209 5 0
J. Hollingsworth	1,118 16 0
J. W. Jones	993 0 0
H. R. Ockenden	988 0 0
Wm. Fox	917 0 0!

PENGE.—For alterations and additions to the Penge and Upper Norwood Constitutional Club, Mastrim House, Anerley-road, for Mr. J. Blundell Maple, M.P. Mr. Morton M. Glover, architect:—

T. Wootton	£405 15 0
W. G. Masters	367 0 0
W. Fox	298 0 0
J. W. Jones	288 0 0
H. R. Ockenden	257 0 0

SWINTON.—For new porch, vestry, and organ loft at the Unitarian Free Church, Jane-lane, Swinton, near Manchester, for the trustees. Mr. Frederic Smith, architect, 29, Bridgewater-chambers, Manchester. Quantities by architect:—

Rawlinson, Swindon (accepted)	£417 10 0
For new Turret on Roof.	
Rawlinson (accepted)	£31 10 0
For additional Heating Pipes and Coils.	
Major, Pendleton (accepted)	£38 0 0
For new Pulpit and Canopy.	
Chorlton, Stalybridge (accepted)	£41 0 0

TONBRIDGE.—For the enlargement of day-school, Barden-road, Tonbridge. Mr. S. W. Haughton, architect and surveyor, East Grinstead:—

Cuthbert, W. F., Tonbridge *	£215 0 0

* Accepted.

TUNBRIDGE WELLS.—For alterations and improvements to the Wesleyan Chapel, Vale Royal, Tunbridge Wells. Mr. W. S. Haughton, architect and surveyor, East Grinstead:—

White & Humphries, Tunbridge Wells	£199 0 0
Strange & Sons, Tunbridge Wells	195 5 0
J. Jarvis, Tunbridge Wells (accepted)	191 0 0

WOODFORD (Essex).—For reconstructing the roof and top floor of Salway House, for Mr. J. R. Roberts. Mr. J. Kingwell Cole, architect, 28, Mount-street, Grosvenor-square, W.:—

A. Reed, Stratford	£875 0 0
Wells, Woodford	535 0 0
Wall Bros., Kentish-town	530 0 0
Osborn & Sons, Woodford (accepted)	488 0 0

Panelling, &c., 52, Sloane-street.—We are asked to say, in reference to a tender which we inserted in our issue of the 22nd ult., p. 222, relative to an accepted estimate for oak-panelling for Mr. Wilson Noble, that Mr. Stenhouse is architect only for some of the interior fittings, and not for the building.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office, 19s. per annum (or 4s. 9d. per quarter), can ensure receiving "The Builder" by *Friday Morning's post.*

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Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY, and for the Front Page by the same Hour on WEDNESDAY.

SPECIAL.—ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY mornings.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

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AN EDITION Printed on THIN PAPER, for FOREIGN CIRCULATION, is issued every week.

Now ready.

READING CASES, { NINEPENCE EACH. By post (carefully packed), 1s.

TO CORRESPONDENTS.

C. W. (thanks, not required).—"One of the Unemployed" (the suggestion is utterly out of the question. Local authorities would not pay the least attention to it. Their only business is with the plans themselves).—T. P. W. (we cannot go into the matter further. The scheme is an unpractical one).—D. A. (the figures and calculations as to comparative economy of back-to-back and "through" houses, referred to in our article, were those of Dr. Barry and Mr. Smith, not our own, as was clearly stated. We cannot waste space in printing a letter in extenuation of back-to-back houses. We will have nothing to say to them at any price).—N. A. N. (we cannot undertake to answer questions of that kind. See notice below).—W. L. R. (thanks).—A. E. P. (amount not sent with one list).—C. & S. (below our mark).—F. L. (too late).—J. W. B. (too late).

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; all communications relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

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CORSHAM DOWN. | FARLEIGH DOWN.

BOX GROUND. | COMBE DOWN.
WESTWOOD GROUND. | STOKE GROUND.

THE BATH STONE FIRMS, Limited.
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THE CHELYNCH STONE. The stone from these quarries is known as the "Weather Beds," and is of a very crystalline nature, and undoubtedly one of the most durable stones in England.

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Prices, and every information given, on application to CHARLES TRASK & SONS, Doulting, Shepton Mallet.

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Greater facilities have been provided for working these quarries, and the stone can be supplied in large quantities at short notice.

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Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds, and milk-rooms, graneries, tun-rooms, and terraces. [ADVT.

Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
M. STODART & CO.,
Office:
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SPRAGUE & CO.'S
INK-PHOTO PROCESS,
22, Martin's-lane,
Cannon-street, E.C. [ADVT.

Garside's Noted Bedfordshire Coarse and Fine Silver Sand.—Is perfectly free from impurity, and the best and cheapest in the market. All qualities in stock, for every purpose required in the building trade, for filtration, or for nursery purposes. All pure grit!
Apply to
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SELF-CLOSING DOORS, FOR THEATRES AND PUBLIC BUILDINGS,
As approved by the Metropolitan Board of Works (used in large numbers at Covent Garden Theatre).

IMPORTANT COMMUNICATION.—FIRE AT WHITELEY'S.

WILLIAM WHITELEY, Westbourne Grove,
London, Oct. 12th, 1887.

HOBBS, HART, & CO., LIMITED.

GENTLEMEN.—It affords me very much pleasure to express to you my satisfaction and admiration at the splendid fire-resisting powers of your Strong-room doors and the Safes.

The recent fire at my establishment in my opinion subjected them to the greatest possible test, and through all, they proved invulnerable.

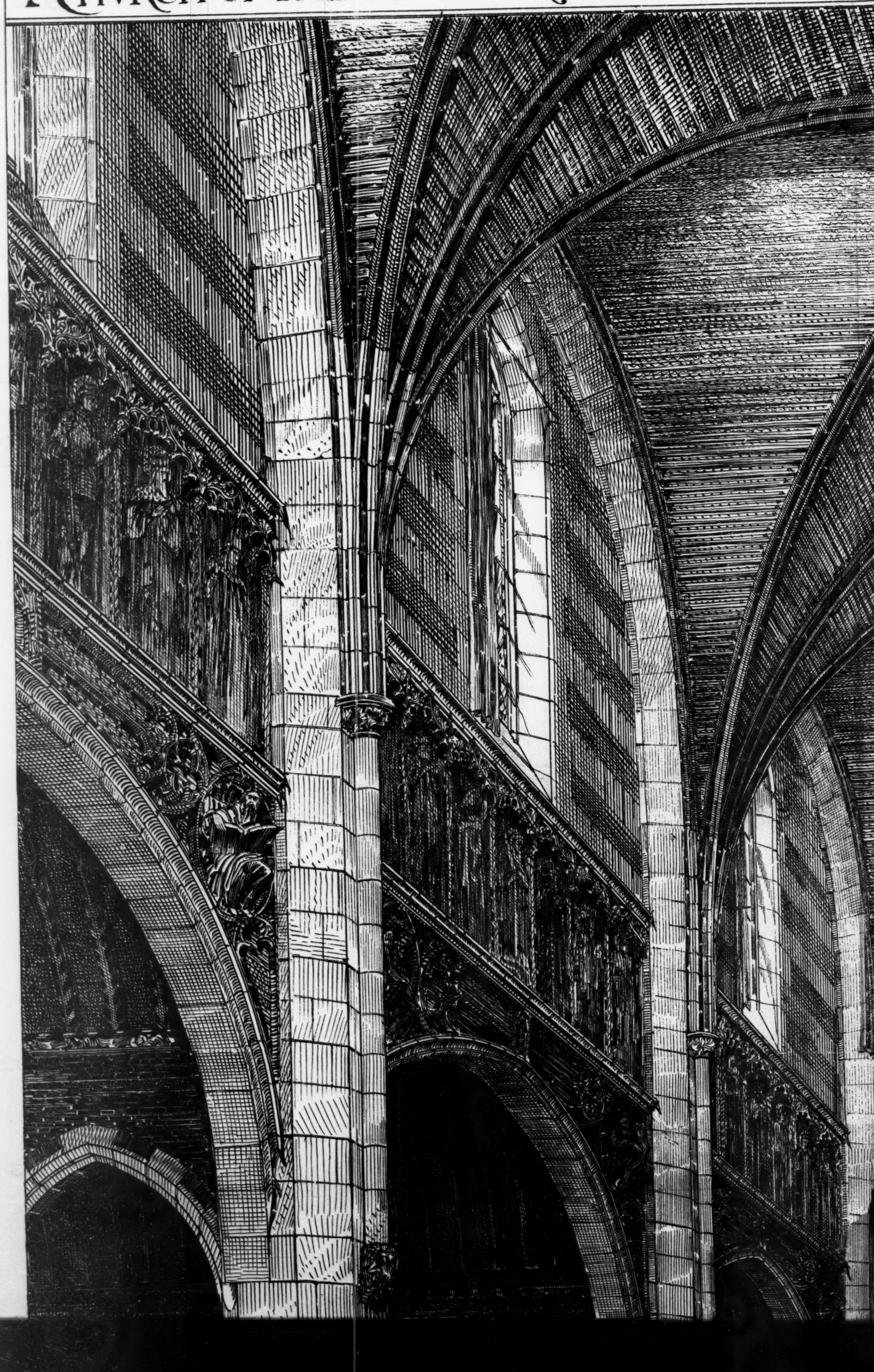
The contents of both Strong Rooms and Safes were entirely preserved, although the fire was of such intense destructive force.

You will be pleased to hear that it has been decided to adopt your Patent Clutch-rebated Doors for all the party-walls in the new buildings now in course of erection.—I am, Gentlemen, faithfully yours,

(*Signed*) WILLIAM WHITELEY.

Offices and Warehouse: 76, CHEAPSIDE, London; Manufactories, Wharncliffe Works, Arlington-street, London, N.

✝ CHVRCH·OF·THE·HOLY·TRINITY·VPPER·CH



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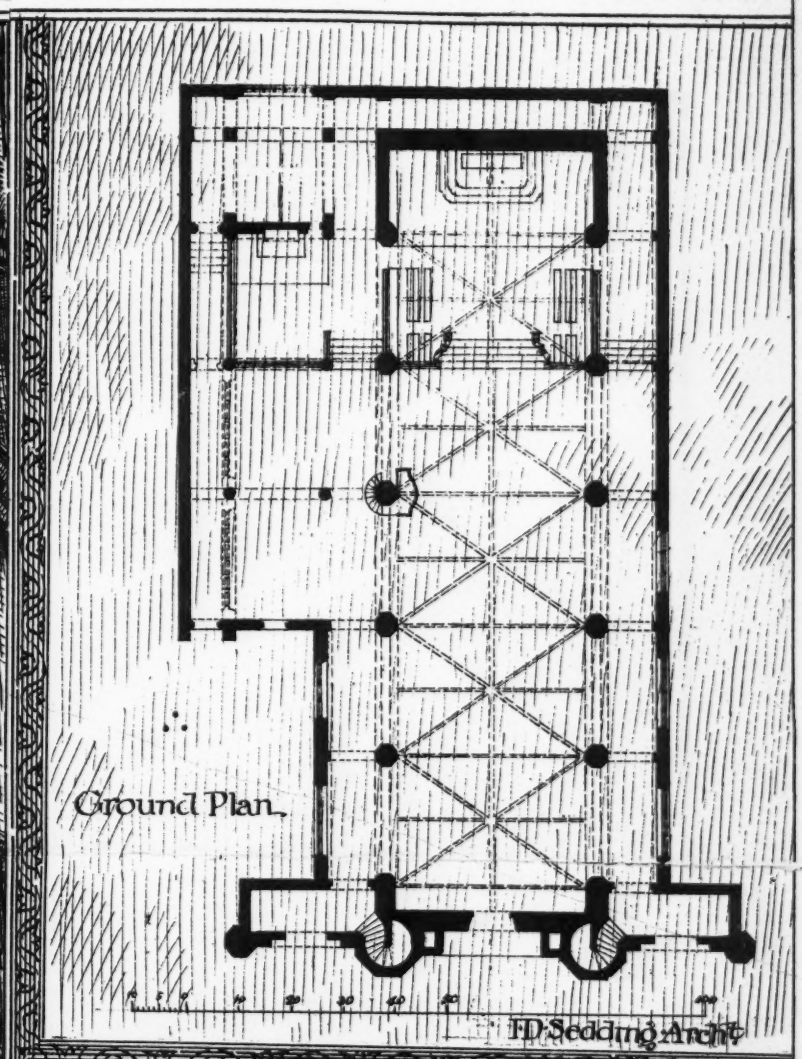

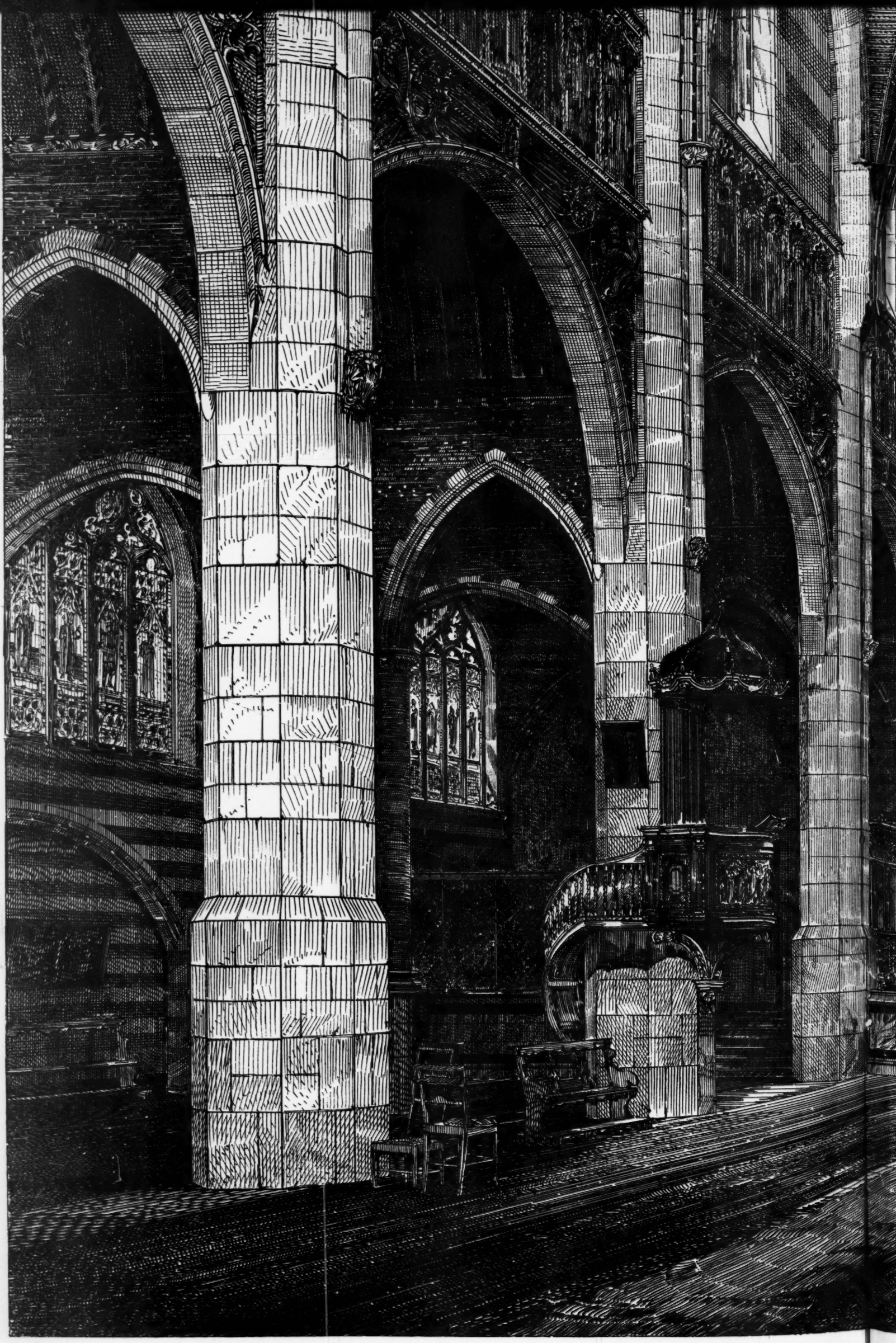

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